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Southern Kraft to Build at Georgetown, S. C.

New plant of Subsidiary of the International Paper & Power Co. Will Make Kraft Paper and Board and Sulphate Pulp and Represent an Investment of Over $8,000,000—Will Have Two Beloit Iron Works Fourdriniers.

R. J. Cullen, president of International Paper and Power Company, announced today that ground is being broken at Georgetown, S. C., for a new kraft paper and board mill for Southern Kraft Corporation, one of the company's principal subsidiaries.

To Be Largest Kraft Mill in World

The designed capacity of the new mill is somewhat larger than that of Southern Kraft's Panama City, Fla., mill which, with a 625 ton daily capacity, is today the largest kraft mill in the world. The completed undertaking will represent an investment of over $8,000,000 and its operation will give employment to over 2,200 men.

Mr. Cullen stated that arrangements have been made to finance construction costs without public sale of securities at this time.

Beloit Iron Works To Supply Fourdriniers

Orders have been placed with the Beloit Iron Works for two large Fourdrinier machines which will have a combined capacity of 215,000 tons yearly. Delivery of these machines is scheduled to commence during May, 1937, and to be completed by August. It is expected that the mill will be in operation by October 1, 1937, giving Southern Kraft Corporation total kraft paper and board capacity of more than three-quarters of a million tons a year in its seven mills.

Location Chosen After Extensive Study

Mr. Cullen stated that the Georgetown location had been selected after an extensive study of available sites. The mill will be situated on deep water and will have its own docks and facilities for ocean shipment to all United States seaports as well as foreign points. Direct connection with the Seaboard Air Line gives access to midwestern and other inland United States markets.

Must Comply With Walsh-Healey Act

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 14, 1936—It is learned on the very highest authority that the Joint Congressional Committee on Printing has decided that paper contractors who bid on the six month bid opening for paper for the use of the Government Printing Office for the period beginning January 1, next, will have to comply with the provisions of the Walsh-Healey government contract act.

The officials of the committee will insist on compliance with the provisions of the new law, it is said, after conferences with the Department of Justice and the Department of Labor, the latter being charged with the Administration of this new law. A statement to this effect, it is said, will be included in the "Instructions" contained in the proposals for bidding which will be distributed later.

While no official announcement has been made it is understood that bids for the six months supply will be received on November 23 with awards to be made one week later.

Bagley & Sewall Ship Crossett Fourdrinier

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., October 13, 1936—Announcement is made here that over fifty freight cars will be necessary in making the shipments of the new 210-inch kraft paper machine which is being constructed by the Bagley & Sewall Company for the Crossett Lumber Company, at Crossett, Ark. The machine is of the most modern, high speed kind, adjustable to various grades of paper, and will be placed in the new kraft mill of the company. Shipments of parts of the machine have already been made, including some of the drier rolls, the winder, reel, and counter stack sections. Several cars were required for shipping the driers alone. The balance of the machine is on the erecting floor and it is expected that the last shipment will be made within the next several weeks. In addition to another new machine, upon which the concern has been working for several months, five new Fourdriniers of the simplex brand are being constructed and consequently six days a week are being observed. Repair job orders are reported good and it is understood that the concern is booked for some time ahead.

Sandy Hill Iron Works Amends Charter

HUDSON FALLS, N. Y., October 13, 1936—A proposition to amend the incorporation certificate of the Sandy Hill Iron and Brass Works was approved last week at a meeting of stockholders. The plan will allow a revision of the financial structure of the concern. The present outstanding shares of stock will be exchanged so that each stockholder will receive two shares of the new common stock and a share of the new preferred stock for each share of the present capital stock.

Paper Chemistry Institute Loses Dr. Wriston

Following Appointment to Presidency of Brown University, Head of Lawrence College Resigns as Director of Institute of Paper Chemistry at Appleton, Wis. — Institute Established During Dr. Wriston's Tenure.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 12, 1936—Headlining the news last week was the resignation of Dr. Henry Merritt Wriston as director of the Institute of Paper Chemistry at Appleton, Wis., effective January 1, 1937. This announcement accompanied his resignation as president of Lawrence College, given at a student convocation.

Dr. Wriston is leaving Appleton to take the presidency of Brown University, Providence, R. I. His successor at Lawrence College is Dean Thomas Nichols Barrows, but no announcement has been made as to who will succeed him as director of the Institute.

Establishment of the Institute of Paper Chemistry in 1929 was one of the most notable achievements of Dr. Wriston's tenure as president of Lawrence College since coming there in 1925. Located in the center of Wisconsin's great paper making area, he sensed a need for a graduate school of this kind and proceeded to establish it on a small scale. Today it is the only institution of its kind in the United States and is fast developing into one of the most important graduate schools in the world. The Institute also is an important center of research, and has in its membership most of the large paper manufacturers in the United States.

Announcement has also been made that Dr. Harry F. Lewis, Dean of the Institute of Paper Chemistry, will make a tour in November and December to address section meetings of the American Chemical Society in the middle West and the far West.

During the month of November, he will appear before local sections of the society in Indianapolis, Ind., Cincinnati and Hamilton, Ohio, and at Purdue University at Lafayette, Ind. His subject will be fundamental developments in pulp and paper manufacture. At Purdue his speech will be largely concerned with engineering development.

Late in November and during the first half of December, Dr. Lewis will go West to speak at Bozeman, Mont., Pullman, Wash., and Portland, Oregon. From there he will travel south to California to address sections of the society at Leland Stanford, Palo, Alto, and the California Institute of Technology, Los Angeles. He expects to add other speaking engagements in these regions before he begins his trips.

United States patent requirements as they apply to pulp and paper making will be presented in a series of lectures during the week of November 16 at the Institute of Paper Chemistry by Dr. Joseph Rossman, patent counsel of the Marathon Paper Mills Company, Rothschild, Wis.

Dr. Rossman is an authority in the field of patent law. He organized the present patent department of the Marathon Paper Mills. Previously he was editor-in-chief of the *Journal of the Patent Office Society*, and has written extensively on the subject of patent law. He is also the author of two volumes, "Psychology of the Inventor," and "The Law of Patents for Chemists." He has served as chairman of the patent committee of the American Association for the Advancement of Science, which spent considerable time investigating protection by patents of scientific discoveries.

Dr. Ervin F. Kurth has begun his duties as research associate at the Institute of Paper Chemistry. He came to the Institute from the Gulf States Paper Company, Tuscaloosa, Ala., and formerly was associated with the United States Forest Products Laboratory at Madison, Wis.

Marathon Granted Parafilm Patents

Marathon Paper Mills Company, Rothschild, Wis., has been issued five patents covering the composition and method of making parafilm, a product which has been in production for some time in a fast-growing market.

Parafilm is a self-sustaining tissue popular in the florist trade for moisture-proof wrapping of stems of flowers in corsages, and has been the object of a large export trade. Production is heavy just now due to the use of this tissue in fancy Christmas wrappings.

Among its newest uses is one developed at Washington, D. C., where blue-prints and maps are being securely sealed and ironed on cloth and other permanent materials with the use of parafilm. Libraries are using it extensively for the preservation of maps, pictures and blue-prints. The latter can be mounted on pressed board and then covered with wax or with a thin sheet of parafilm for waterproofing, making it possible to expose blue-prints to all kinds of weather.

The patents just issued cover this use of the tissue and also its uses as a heat-healing paper by coating articles with the composition. In addition, the patents cover laminated paper made by joining two sheets of other varieties of paper with the composition, which forms a flexible moisture-proof paper. The patents cover a total of 88 claims.

News of the Industry

Apparatus for printing and embossing in register has been patented by Charles G. Bright. The rights have been assigned to the Kimberly-Clark Corporation, Neenah, Wis. The apparatus comprises a cutout metal printing roll carrying a design in relief, an embossing roll carrying in relief the same design, and operating in rolling contact with an inking roll and a paper web passing between the two.

Neenah Foundry Company, Neenah, Wis., has begun construction of its third addition within the past year. The new building will be 60 by 80 feet in size and of concrete block construction, according to E. J. Aylward, president. The enlarged quarters will be used for manufacture, and will permit employment of 20 additional workmen. Fluor Construction Company of Oshkosh, Wis., has been awarded the contract.

The safety "baseball contest" in progress at the Kimberly-Clark Corporation's mill at Kimberly, Wis., is to close October 17. The employees have been divided into sixteen teams, and are credited with winning games for perfect records, and lost games for lost time accidents. Most of the teams have perfect scores to date. The idea has stimulated keen competition in safety.

Installation of a new elevator has been completed at the Fox River Paper Company, Appleton, Wis. A maintenance crew is also busy repairing and repainting roofs, and in other work to place all the buildings in first class condition.

Suits brought against the Consolidated Water Power and Paper Company by residents of Stevens Point, Wis., were denied by a jury in Circuit Court. Two of the plaintiffs, John Zdroik and Stanley Rempalla sought recovery

of $2,000 each, alleging the overflow from the company's dam over a period of years had damaged their property. A third, Anna Domka, asked the jury to determine her damages. The jury decided there was no damage.

Emil A. Gyrion Dead

Emil A. Gyrion, superintendent of the Wisconsin River Paper and Pulp Company, Stevens Point, Wis., died October 8, following a ten-day illness. He had been suffering from a heart ailment for several years and experienced a severe attack about three weeks ago. Death came at the home at Whiting, Wis.

Mr. Gyrion followed in his father's footsteps in the paper industry, since the latter was employed at the Whiting-Plover Paper Company and the Wisconsin River Company. He started as a fourth hand on a paper machine and worked his way up. For twelve years he was night machine boss. He had been superintendent for the last twelve years, and served a total of 39 years with his company. He was 55 years old.

Mr. and Mrs. Gyrion began construction last spring of an attractive new stone residence and were to occupy it later this fall. One son is the additional survivor.

To Hold Hearings Under Walsh-Healey Law

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 14, 1936—Secretary of Labor Frances Perkins has announced the establishment of a public contracts board in the Department of Labor to hold hearings and to make findings upon questions arising under the Walsh-Healy law which went into effect last week and requires that manufacturers and dealers who make future contracts in excess of $10,000 with the Government shall comply with certain minimum wage, maximum hour and other labor conditions in the performance of the contract.

Pending the passage of a special appropriation act the board will consist of three officers of the Department, Frank Healy of the Office of the Solicitor, Hugh L. Kerwin, Director of Conciliation, and Telfair Knight, Counsel for the Textile Labor Relations Division. Mr. Healy, who is designated as chairman, was formerly head of the Government Contracts Division of NRA.

Under the terms of the administrative order naming this temporary board, the members were charged with the duty of passing upon requests for exceptions and exemptions, establishment of overtime rates, complaints of violations of the act, establishment of prevailing minimum wages, and appeals from the rulings of other agencies.

The determination of minimum wages will be made by industries or industry groups and will be preceded by hearings at which representatives of labor and management will be invited to appear, Secretary Perkins said. The board in making such recommendations will also draw upon the panel of employer and employee consultants for technical advice. The Secretary is expected to name this panel within a few days.

Thus far no minimum wage hearings have been scheduled on the docket of the board. It was announced, however, that the clothing industry would probably be the first to be taken up. The Department is now making a statistical survey of wages paid in the various branches of the clothing industry.

L. E. Maglathlin to Manage Keith Paper Co.

TURNERS FALLS, Mass., October 13, 1936—At a meeting of the directors of the Keith Paper Company, held in Turners Falls, Mass., October 6th, Leon E. Maglathlin was elected general manager of the company, succeeding Albert R. Smith who retired on October 1.

American Writing Reorganization Plan

Numerous changes have been made in the reorganization plan for the American Writing Paper Company, and approved by the Federal District Court in Boston. Chief among them are the elimination of a proposed issue of second mortgage bonds and an increase in the general mortgage issue, together with an increase in the amount of stock, part of which is to be reserved for bond conversion.

Under the amended plan the company will have outstanding $1,000,000 6 per cent first mortgage twenty-year bonds, to bear not more than 6 per cent interest, and to be used as collateral for $1,000,000 of secured notes, which latter are to be sold in two series of $500,000 each, probably to the Federal Reserve Bank, to provide funds after the plan is consummated.

There will also be $3,040,000 of the general mortgage bonds convertible into stock at varying rates. Interest rate on the general mortgage issue will be variable at first depending on income but later will be fixed at 6 per cent.

Conversion rates for the new bonds will be ten shares of stock for each $100 of bonds to December 31, 1941, eight shares to June 30, 1941 and six and two-thirds shares to December 31, 1946. Maximum share capitalization is to be 750,000 shares.

Each $1,000 of existing first mortgage 6 per cent bonds will receive $500 of the new general mortgage bonds and fifty-six shares of stock. Holders of unsecured debt as of June 25, 1934, will receive 25 per cent in cash, 20 per cent in general mortgage bonds and five shares of stock for each $100 of debt. Holders of debt in amounts smaller than $100 will receive full cash payments.

Each two shares of present 6 per cent cumulative preferred stock will receive one share of new common stock.

Each 20 shares of present common will receive one new share.

Outlook for Brown Co. Improves

In a letter to holders of the Brown Company first mortgage 5½ per cent bonds, the bondholders protective committee, of which Charles Francis Adams is chairman, reported last week that there had been some favorable developments in the position of the company.

These include a contract for the sale of a largely increased tonnage of rayon pulp for export to Japan in 1937; arrangements with Commercial Credit Corporation to take over on favorable terms the loan on inventories originally made by the Federal Reserve Bank of Boston, and the purchase of the output of the Port Royal Pulp and Paper Company, Ltd., at St. John, N. B.

The committee requested that bondholders who have not deposited their bonds do so promptly. More than $9,000,000 of the bonds, which represent somewhat less than half of the outstanding total, have already been deposited, according to the committee's report.

Japan Increases Pulp Imports

WASHINGTON, D. C., October 14, 1936—Pulp imports to Japan during July amounted to 65,742 pounds, or 35 per cent above those of June and over 100 per cent above those of the corresponding period in 1935, according to a report from Trade Commissioner Paul Steintorf, Tokyo. This large increase is attributed primarily to the expansion of the staple fiber industry. Paper production for July amounted to 149,000,000 pounds, representing a decline of approximately 2 per cent in comparison with June. Sales of paper amounted to 140,000,000 pounds, which was a decline of approximately 5 per cent compared with June.

Newsprint Mills Operating At Near Capacity

All Five St. Maurice Valley District Newsprint Plants on Practically Full Time Schedule—Three Newsprint Units at Three Rivers Will Probably Maintain Uninterrupted Full-Time Operation Until End of Year.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 12, 1936—All of the fine large newsprint producing units in the St. Maurice Valley district are now operating on a scale which brings their total output close to their aggregate rated capacity.

The *St. Maurice Valley Chronicle,* in making this announcement says a survey of the situation reveals that "lost time" is now uncommon amongst the paper-mill workers who have been getting bigger envelopes more regularly than at any period since 1930.

Improvement in Efficiency

A feature of the new order of things in the local newsprint industry is the tremendous improvement in manufacturing efficiency. Thanks to the severe competition engendered by the depression, the paper mills developed a low-cost technique which would have been incredible back in the old and wasteful days.

It is pointed out that wage levels have been well maintained in the paper industry. When the depression first made itself felt some drastic cuts were put into effect, but in the case of the mill workers at least, these have now been largely restored.

Quiet Optimism in Order

If operations in the St. Maurice Valley can be taken as a criterion of general conditions in the industry then a certain amount of quiet optimism would seem to be in order.

It is currently reported that the three Three Rivers newsprint units—Wayagamack, Canipco and St. Lawrence—will maintain their present rate of operations for some time to come, with more than a prospect of uninterrupted full-time operation until the end of the year.

Will Not Allow New Pulp Mills

Maurice Duplessis, the new premier of Quebec Province, made a somewhat sensational announcement over the week end. He stated that the Cabinet had decided not to allow any new pulp mills to be established in the province until all the old ones were operating. The announcement followed the application of representatives of certain interests for encouragement for the building of a mill for the production of pulp with which to make rayon material.

"So long as I am here," said the Premier, following a Cabinet meeting, "I told these gentlemen, we would not consent to permit the construction of any new mills for that kind of material until the existing mills are in operation. I pointed out that there were a number of mills, such as at Chandler in the Gaspe Peninsula, at Ste. Anne de Beaupre, at Cape de la Madeleine, and at Chicoutimi, which were not in operation. It will be noted that there is a wide range of locations in which people who wish to establish themselves in the newsprint and pulp industry can establish themselves without it being necessary to build new mills. Until these mills which are not in operation are reopened, we will not permit the construction of additional plants."

"Furthermore," added the Premier with emphasis, "we will not permit increases in the capacity of existing mills. We believe that there has been serious overproduction, and this brought about the disasters which visited this important industry; and to favor the construction of additional mills, or to increase the capacity of those now existing, would be only to add to the serious state of overproduction which has resulted."

Hon. Mr. Duplessis added that those people who wish to invest in the pulp and paper industry had obviously a wide range for their activities in the mills which are now not operating, and especially a wide variety as to locality.

The Chandler mill to which he referred is owned by the Premier Pulp and Paper Company, successor to the Bonaventure Pulp and Paper Company. It has four digesters and four wet and one dry machines, with a daily capacity of 30,000 lbs. of strong sulphite fibre. It is idle.

The mill at Ste. Anne de Beaupre is owned by the Ste. Anne Paper Company, Ltd., with head office in Montreal. It has a ground wood mill, with twelve continuous magazine grinders, a sulphite mill with three digesters for the manufacture of sulphite fibre, and two 234-inch Fourdriniers for the manufacture of newsprint. The mill is idle.

Presumably the mill at Cape Madeleine to which the Premier referred is one owned by the Consolidated Paper Corporation. It has capacity for the manufacture of 520,000 lbs. of newsprint per day. The pulp capacity is 400,000 lbs. of ground wood, 180,000 lbs. of sulphite fibre, and 130,000 lbs. of sulphate fibre.

At Chicoutimi is the plant of the Quebec Pulp and Paper Corporation, which has a daily capacity of 600,000 lbs. of ground wood (dry). This mill is idle, and the latest advice were that the plant was being dismantled.

Price Brothers Reorganization

According to the *Financial Times,* of Montreal, details of a new plan of reorganization for Price Bros. & Co. Ltd., in bankruptcy, have been almost fully worked out. The broad outlines are understood to be as follows: Redemption of the 6 per cent 1st mortgage bonds at the call price of 104½ plus accrued interest—and presumably payment in cash of all unsecured creditors' claims—from the proceeds of a new issue of bonds carrying a lower coupon rate, probably 5 per cent; a share for share exchange to preferred shareholders of a new preference stock, either 6 per cent non-cumulative or 5 per cent cumulative—not yet decided; and a share for share exchange to common shareholders of a new junior equity, the number of shares outstanding to be increased to the extent of common stock which will be issued to the interests responsible for the bringing in of the new money.

Outstanding 6 per cent bonds of Price Bros. amount to $11,061,600 and redemption at the prevailing call price of 104½ would demand the payment of $11,559,372. Interest on the bonds as at August 1st last was in arrears to the extent of 4½ years' requirements, or 27 per cent involving an additional $3,121,030. Thus the calling in of the bonds would require the sum of $14,680,402 without any allowance for interest on the back interest. Payment of creditors claims and other cash requirements for the lifting of the receivership would call for another $1,500,000 approximately, and it is to be assumed that some new working capital would have to be injected into the company. This would mean that new bonds to the extent of $17,500,000 or $18,000,000 would be necessary.

Demand for Paper Satisfactory In Chicago

Kraft Wrapping Paper Continues to Display Strength — Ground Wood and Newsprint Papers Show Improved Trend — Position of Book and Cover Papers Practically Unchanged—Paper Board Shares General Betterment.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 12, 1936—Prices are comparatively steady and demand satisfactory in the Chicago paper market. The general paper line in this market continues to give an excellent account of itself with kraft considered as in the lead in this respect. Demand for these products remains at a satisfactory level. Groundwoods are reported to have bettered themselves during the week and newsprint is reported as in a slightly stronger position. Books and covers remain little changed. The board market is responding to general business conditions. Specialty lines affected by the holiday market report a Christmas season about the best since before the depression.

Waste papers were more firm as the mills in various lines continued to retain a high ratio of production. Folded news, in particular, was said to be stronger as the board mill production went on at a satisfactory pace. Local quotations on waste paper prices, per 100 pounds and at local dealers buying prices, show heavy book stock at .45 to .50; light book stock at .30 to .40 and No. 1 White Shavings (soft) at $1.20 to $1.35, reflecting the slightly improved demand in waste grades due to the comparatively favorable mill production. Folded news is running between .25 and .30 and mixed papers are quoted at between .15 and .20. Box board is running between $8.50 and $9.00 per ton.

Paper Beer Bottles

Chicago and Illinois, center of a considerable brewing and distilling industry, is reported as practically interested in the new development of paper bottles for the beverage industry. A new paper container similar in form to that of a beer bottle may be one of the immediate developments which will react to the advantage of the container forces. Samples of bottles prepared for an eastern brewery have been circulated here, these sample bottles being 7¼ inches high and having a diameter of approximately 2¼ inches. They are cylindrical and the samples, at least, have been constructed from high grade sulphite ten point paper with three-ply thickness. The ends are of a thicker paper of the same material and the actual area of the bottle is 50 square inches. Chicago beer producers are told that these paper bottles can stand an internal pressure of 5,000 pounds or 100 pounds per square inch. The processed exterior of the bottle makes it impervious to ice and water but proper for refrigeration and pasteurization temperatures.

The paper industry may find this new development in the parade out of prohibition days as one that will materially increase consumption of paper and the low cost of producing the paper bottle is likely to overcome any shortcomings that may be in favor of the tin can variety and finally represent a considerable volume. It is of course feasible to use the paper bottle for many things aside from beer.

News of the Industry

Recent developments in the bond field are certain to make the coming meeting of the Sulphite Bond group one of the most important in a considerable length of time. The meeting of the Sulphite Bond Division of the Writing Paper Manufacturers Association will be held at 2 p. m. the afternoon of October 14 at the Drake Hotel. Originally scheduled for October 13, the sessions have been postponed one day because of conflicting dates. E. H. Naylor, executive secretary, is making arrangements for the program. The following week, on October 21, S. M. Hudson, secretary, will meet with members of the Kraft Paper Association in session at the Drake Hotel, the meeting getting under way at ten o'clock in the morning. Both meetings described above are considered of considerable importance.

Included among the many new lines introduced in Chicago during the past three weeks are the following: Midland Paper Company, Insert Folder and International Cover and Benefit Index, made by the Chemical Paper Manufacturing Company; Allen Paper Company, Franklin Bond, budget ledger and mimeo, made by the George A. Whitney Paper Company; Bermingham & Prosser, Ticonderoga Vellum, made by the International Paper Company; J. E. Butler Paper Company, Ardendale Cover, made by the Beveridge Paper Company and Swigart Paper Company with Benefit Index made by the Chemical Paper Manufacturing Company.

The Swigart Paper Company has recently issued a descriptive folder on Management Bond made by the Hammermill Paper Company. Described as a new low-priced watermarked bond paper it comes in a "usable range of colors, sizes and weights" and is reported dependable in quality. A price list is enclosed by Swigart along with swatches illustrating colors white, blue, green, buff, canary, goldenrod, pink, gray and salmon in 16 and 20 substances.

Four Color Die Inker

After a full year of trial operation in the plants of large paper converters, a new unit which its users claim has revolutionized production of colored and embossed papers and boards, is now being offered to the trade by the Hudson Sharp Machine Company of Green Bay.

Wall papers made on this unit are now being sold throughout the country and additional units have recently been ordered by several large producers.

This heavy duty embosser, with four color die inking press attached, may be used by producers of wall papers, liner boards, cover boards, wall boards, photo mounts and similar products to obtain any type of embossed surface, with the addition of from one to four colors spotted as desired and run at a single operation direct from jumbo rolls or sheets.

Any one of the four colors may be thrown out or into action by the movement of a lever. Die inking rolls have adjustments whereby they may be adjusted laterally, backward or forward while the machine is in operation. The die inking unit may be cut out entirely so that the equipment can be used for plain embossing.

Samples of work taken from this unit may be obtained by writing the Hudson Sharp Machine Company. Interested converters may address this company and secure information from competent engineers as to the feasibility of this equipment for the solution of embossing and color tinting problems.

Second Thunder Bay Paper Machine Resumes

After Being Idle for Six Years, Unit of Abitibi Pulp & Paper Co. Went Into Operation on October 1 at Port Arthur, Ont.—Ground Wood Pulp Plant Resumed Operation Simultaneously—Great Lakes Rates Reduced

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 12, 1936—The Great Lakes Paper Company, Port Arthur, Ont., has had its rate for horsepower reduced by $3., to $18. This became effective on October 1, according to word received from the Hydro-Electric Power Commission of Ontario. Two out of the three paper mills operating at the head of the Great Lakes buy their power through the Port Arthur Public Utilities Commission.

The second paper machine of the Thunder Bay mill of the Abitibi Power and Paper Company, which has been idle for six years, went into operation on October 1 at Port Arthur, simultaneously with the Current River ground wood mill. Operation of the latter in a separate building located a short distance from the newsprint mill is required to provide pulp to feed the second paper-making machine at the larger plant.

Pulpwood Situation

Upwards to $300,000 will be spent by the Ontario government in the improvement of certain Northwestern Ontario rivers, in order to make possible the transport of some 10,000,000 cords of high grade pulpwood into Lake Superior. At present the pulpwood is in inaccessible stands along the height of land. The Hon. Peter Heenan, Minister of Lands and Forests, states that a survey of the whole project will be launched immediately by his department. He declares that there are vast pulp areas in the territory that have never been cut into, and of which the government can make advantageous use, by improving water routes between them and Lake Superior. He announced the winding up of arrangements for another new contract for pulpwood export of some 40,000 cords in 1936 and 1937, and 60,000 in the following year. Other matters are the sanctioning of a survey of two Northern waterways, with a view to their improvement to give access from 10,000,000 to 12,000,000 cords of what is now inaccessible pulpwood and timber. An estimate that at least 5,000 square miles of timber is being regained by the Crown by negotiations was made by Mr. Heenan, who went on to say that the government had been working industriously of late on its policy of re-allocation of timber limits, authority for which was obtained at the last session of the Ontario Legislature. So far only three companies have been concerned in the government's deliberations. Concluding, Mr. Heenan said that these 5,000 square miles of limits, which had been in private hands for years, would return to the Crown without any serious objections to the transfer.

The Fort Frances Pulp and Paper Company, Fort Frances, Ont., will purchase practically the same amount of pulpwood in that district during the coming year as it did last, the company securing a large quantity of wood from settlers in the Rainy River district, nearly 500 being under contract and the orders averaging around 45 cords each. Frank Morris, resident manager of the company, said that the annual pulpwood purchased in the district represented approximately a quarter of a million dollars. He added that it was the policy of the company to endeavor to develop the use of more poplar because of its abundance, and owing to the necessity of conserving the spruce supply, which was rapidly diminishing.

Recently a conference was held at Port Arthur, Ont., in regard to the wages which will be paid to timber and pulpwood workers during the coming season. There was an increase of 15 per cent per cord for sap-peeled wood proposed for the beginning of June, 1937. At a conference of the officials of the Lumber and Sawmill Workers Union, it was declared that with the present favorable situation of the industry, and the reduction in stumpage dues, the increase suggested was warranted. Lewis Fine, Industrial Standards Act officer, Toronto, presided.

Officials of the Forestry Department Branch at Sault Ste. Marie, Ont., estimate that approximately 2,200 men will be employed in bush operations in the Algoma district this season. Two permits have already been taken out, one by the Abitibi Power and Paper Company, which will employ 1,100 men cutting pulpwood on its own limits and those of the Algoma Central Railway; the other permit is by the Neilson Lumber Company, who will do logging at Lake Matinenda, north of Blind River.

2,500 men will be employed in the bush in the Sudbury district cutting timber and plywood during the coming season.

W. G. Harbottle Dead

W. George Harbottle, of Pine Falls, Man., who was assistant treasurer and accountant of the Manitoba Paper Company, was instantly killed recently when his automobile crashed head-on into a loaded wood truck on the Trans Canada Highway near Parkdale. His wife also received injuries to the head and hand. Mr. Harbottle had resided at Pine Falls for some ten years, and took much interest in local sports. Born in Durham County, Ont., 46 years ago, he had for the last twenty years been actively connected with the pulp and paper industry. He was accountant with the Spanish River Pulp and Paper Company, at Sault Ste. Marie from 1916 to 1926, and in the latter year was transferred to Pine Falls as assistant treasurer and accountant to the Manitoba Paper Company, a position that he held up to the time of his death.

News of the Industry

John Ball, general manager of the Beaverboard Company, Thorold, Ont., lately announced the third wage increase in the last two years, bringing the wage scale of all employees on an hourly rate back to pre-depression levels. The Papermakers and Pulpmakers Union accepted the company's plan to increase wages under .45 cents an hour by ten per cent, and over 45 cents an hour by five per cent. The increases became effective October 1. This makes the second wholesale raise in wages in Thorold plants within the past few days, the provincial Paper Company having made an increase lately.

The export of Canadian wood pulp and screenings in August was valued at $2,829,830, of which $2,432,481 went to the United States and $236,785 to the United Kingdom. A year ago the export was $2,355,879. The export of pulpwood was 142,362 cords, valued at $1,107,255 compared with 161,886 cords at $1,230,778 last year. Practically all this export goes to the United States.

Container Corp.'s Business Shows Sharp Gain

President W. P. Paepcke Reveals Manufacturing Operations at All Plants of Company Are Running Well Ahead of Preceding Year's Record—More Than One Million Dollars Have Been Spent on Expanding Manyunk Plant

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 12, 1936 — Walter P. Paepcke, of Chicago, president of the Container Corporation of America, addressing the opening session of the Fourteenth Annual Conference of the National Industrial Advertisers Association at the Benjamin Franklin Hotel, this week, said that his company's business is showing sharp gains. Earnings for the quarter ended September 30, he said, probably will approximate those for the corresponding period last year. In the September 30 quarter last year, the company earned in excess of $390,000 or about 60 cents a share on 653,540 shares of capital stock then outstanding.

"This profit result," Mr. Paepcke said, "is somewhat misleading. The net result was cut down by the fact that we gave employees a full week's vacation with pay, which meant an outlay of some $60,000 to $70,000. Business in all our plants is running well ahead of last year, and we expect further gains."

Prior to making his address, Mr. Paepcke discussed some recent expansion at the company's plant in Manayunk. He stated the company had spent more than $1,000,000 in expanding its manufacturing facilities in the Manayunk plant, located on the Schuylkill River, the outlay in a large measure being for turbines and boilers, a necessary adjunct to increasing the output or production of paper cartons. The company has also purchased a factory building at 4th and Bristol streets to be used as a concentration center for raw materials, which are largely waste paper.

Association Activities

The regular monthly meeting of the Philadelphia Paper and Cordage Association will be held on Friday, October 16 at the Hotel Adelphia, preceded by a luncheon. E. K. Lay, chairman of the Entertainment Committee, has secured the services of J. Stanley Best, president of the Philadelphia Typesetters Association, who will present a short talk on association work and its accomplishments. Mr. Best, whose business keeps him in contact with the printing trade, is familiar with the problems that beset the paper salesman calling on these accounts.

The following have recently had membership in the association conferred upon them: Fox Paper Company, represented by W. H. Randel, Bourse Building; Franklin Paper Company, Inc., represented by H. A. Jacobs, 810 Sansom street; Sealright Company, Inc., represented by G. L. Philip, 714 Ormond Avenue, Drexel Hill; the Yarrington Mills Corp., represented by Robert W. Yarrington, 2012 East Arizona street; Glassine Paper Company, represented by Wm. Butler, Jr., West Conshohocken, Pa.; Wilson Paper Company, 48 North Third street, represented by Edward Wilson; Penn Paper and Stock Company, represented by Wm. J. McGarrity, Jr., 1025 North Front street; Fort Howard Paper Company, Green Bay, Wis., represented by Clarence E. Hayes, 665 Drexel Building; Quaker City Paper Company, represented by Howard W. Lee, 307 Vine street; International Envelope Company, represented by Ephriam Foster, Northwest corner Palmer and Hope streets; Philip Rudolph & Son, represented by Philip S. Rudolph, Jr., Orianna and Willow streets.

W. L. Carter Says Industry Needs Youth

[FROM OUR REGULAR CORRESPONDENT]

NEW HAVEN, Conn., October 12, 1936—Winthrop L. Carter, head of the Nashua Gummed and Coated Paper Company, Nashua, N. H., and president of the New England Council, addressed the 27th annual conference of the New England Conference of State Federations of Women's Clubs at the Hotel Taft here last Wednesday. He told the conference that only by the absorption by industry of large numbers of unemployed youth, whether there is any immediate need for their services or not, will New England be able to escape a future serious shortage of skilled labor. He declared that we are faced with the problem of growing numbers of youths unable to find employment while, at the same time, industry is faced with a growing shortage of skilled workers.

"Industry is such an outstanding factor in our New England life, contributing 80 per cent of our income, that it is natural for the greater portion of our young people to look to it for employment," he said, continuing:

"The very qualities of youth today which cause criticism of them will, in my opinion, prove most constructive to industry. I refer to their disregard of precedent and their dissatisfaction with conditions as they are.

"The outstanding change of industry in the last thirty years, the period of my generation, has been the shifting of the production burden from the hand to the head. It was commonplace in New England in my youth to refer to employees as 'hands.' Today we know an employee's head is worth more than his hands.

"Industry needs youth in order to stay young itself. Companies reach maturity and decline. This is recognized by bankers who consider that a business which is not planned for more than one generation is not a good long-time investment.

"The only way to keep industry virile is to each year introduce new blood into the organization. This can be done only by making it a standard practice to take in each year a certain number of community-trained young people."

New England TAPPI To Discuss Felts

The New England Section of the Technical Association of the Pulp and Paper Industry, will meet on October 17, 1936 at the Berkshire Hunt and Country Club, Lenox, Mass.

The guest speaker will be E. A. Rees, director of research, of F. C. Huyck & Sons, Albany, N. Y. Dr. Rees will talk on "The Function of a Felt, The Correct Way to Use a Felt, and The Way to Clean a Felt for Better Service." Grellet N. Collins, President of TAPPI and C. C. Heritage, past president, will also be guests. Dinner will be served at 6:30 P.M. and will be preceded by an all day golf tournament. All papermakers and others interested will be welcome to attend.

Paperboard Industry Runs at 76 Per Cent

Monthly statistics on Paperboard, .012 of an inch in thickness for August compared with preceding months have been released by Director William L. Austin, Bureau of the Census, Department of Commerce, and are presented in the following tables. The statistics for August, 1936, were compiled from data furnished by the National Paperboard Association from reports of members and by manufacturers reporting direct to this Bureau.

Production for August

The production of paperboard for August, 1936, amounted to 319,391 short tons, or 76.7 per cent of the rated capacity of the mills reporting. The ratio of inch hours of operation to rated capacity for August, 1936, was 76.5 per cent, as compared with 71.1 per cent for July, 1936, 67.0 per cent for August, 1935, and 59.0 per cent for August, 1934.

TABLE I.
INCH HOURS OPERATED, PRODUCTION, AND ORDERS
(95 MANUFACTURERS)

Year and Month	Operated (Inch hours) (Based on last dryer width) Rated capacity	Operation for month	Per cent of rated capacity	Production (Short tons) Rated capacity	Production during month	Per cent of rated capacity	New orders received during month (short tons)	Unfilled orders, end of month (short tons)
1936								
Jan.	15,251,225	9,963,914	65.3	427,564	270,928	63.4	283,890	94,210
Feb.	14,143,988	9,682,428	68.5	396,354	271,107	68.4	268,843	91,917
Mar.	14,683,725	10,128,474	69.5	411,199	285,257	69.4	290,854	96,202
April	14,627,093	10,452,616	71.5	412,191	294,929	71.6	298,180	99,796
May	14,497,925	10,140,595	69.9	407,729	289,527	71.0	280,899	92,784
June	14,545,973	10,186,905	70.0	409,510	288,682	70.5	290,098	96,402
July	15,057,386	10,699,561	71.1	429,139	299,033	69.7	304,747	101,557
Aug.	14,545,972	11,122,150	76.5	416,338	319,391	76.7	332,553	117,443
Total (8 mos.)	117,253,287	82,376,643	70.3	3,310,024	2,318,854	70.1	2,350,064	.....
1935								
Jan.	15,455,578	9,793,592	63.4	416,501	262,026	62.9	273,151	80,987
Feb.	13,636,918	9,308,323	68.3	366,598	251,870	68.7	252,578	84,341
Mar.	14,709,922	10,029,490	68.2	398,949	275,770	69.1	268,360	79,049
April	14,901,848	9,543,895	64.0	402,831	260,851	64.8	255,730	79,296
May	15,498,589	9,615,348	62.0	418,324	262,463	62.7	259,995	80,367
June	14,284,978	9,418,123	65.9	385,742	256,665	66.5	248,656	78,020
July	15,592,118	9,397,786	60.3	423,545	260,207	61.4	259,486	78,241
Aug.	15,592,118	10,450,399	67.0	423,545	291,127	68.7	297,349	86,767
Total (8 mos.)	119,672,069	77,556,956	64.8	3,236,035	2,120,979	65.5	2,115,305	.....
Sept.	14,380,430	10,273,750	71.4	390,840	289,596	74.1	307,103	105,088
Oct.	16,108,039	12,404,641	77.0	434,717	345,596	79.5	351,887	107,074
Nov.	13,598,280	10,526,226	77.4	399,897	294,290	73.6	272,477	88,971
Dec.	14,770,746	8,818,058	59.7	400,139	243,594	60.9	234,753	81,894
Total (Year)	178,529,564	119,579,631	67.0	4,861,628	3,294,055	67.8	3,281,525	.....
1934								
Jan.	14,879,791	8,506,259	57.2	406,760	233,182	57.3	220,554	63,665
Feb.	13,227,743	8,475,759	64.1	355,554	227,140	63.9	238,225	75,759
Mar.	15,135,748	9,844,248	65.0	405,206	263,199	65.0	273,298	86,440
April	14,018,872	9,282,387	66.2	376,756	251,324	66.7	237,539	76,867
May	15,274,886	8,716,342	57.1	409,487	231,107	56.4	233,877	81,293
June	14,847,757	8,528,498	57.4	397,005	228,078	57.4	218,369	73,473
July	14,422,003	7,645,095	53.0	395,518	208,252	52.7	207,352	74,088
Aug.	15,442,025	9,116,133	59.0	428,140	250,931	58.6	251,073	72,386
Total (8 mos.)	117,248,825	70,114,721	59.8	3,174,426	1,893,213	59.6	1,880,287	.....
Sept.	14,323,043	8,935,783	62.4	397,277	243,764	61.4	239,196	73,114
Oct.	15,531,484	9,810,027	63.2	417,150	267,456	64.1	259,557	69,198
Nov.	14,893,816	8,614,549	57.8	396,757	229,754	57.9	220,841	62,537
Dec.	14,803,783	7,726,155	52.2	381,419	205,518	53.9	207,589	65,784
Total (Year)	176,800,951	105,201,235	59.5	4,767,029	2,839,705	59.6	2,807,470	.....

TABLE II.
CONSUMPTION AND STOCKS OF WASTE PAPER
(85 MANUFACTURERS)

Year and Month	Consumption of waste paper (short tons) Rated capacity	Consumed during month	Per cent of rated capacity	Stocks of waste paper at plants, end of month (short tons)
1936				
January	370,319	229,064	61.9	216,040
February	343,024	226,216	65.9	193,919
March	356,763	237,601	66.6	204,376
April	356,746	245,566	68.8	204,353
May	356,463	241,895	67.9	213,435
June	359,359	241,656	67.2	218,330
July	371,692	249,402	67.1	219,042
August	359,360	268,770	74.8	207,886
Total (8 months)	2,873,726	1,940,170	67.5	.....
1935				
January	359,167	210,812	58.7	210,320
February	322,920	211,560	65.5	214,069
March	345,236	231,584	67.1	207,987
April	347,845	217,300	62.5	214,630
May	361,312	219,767	60.8	222,819
June	334,875	213,523	63.8	230,065
July	366,084	217,934	59.5	233,584
August	366,084	246,537	67.3	288,537
Total (8 months)	2,803,523	1,769,017	63.1	.....
September	337,395	244,963	72.6	220,998
October	373,312	288,668	77.3	214,685
November	345,005	246,318	71.4	213,297
December	344,705	196,429	57.0	211,029
Total (Year)	4,203,940	2,745,395	65.3	.....
1934				
January	309,593	173,300	56.0	178,545
February	307,577	180,765	58.8	197,340
March	380,710	229,772	60.4	206,060
April	322,533	197,741	61.3	215,648
May	325,006	176,018	54.2	227,877
June	397,931	207,476	52.1	221,836
July	429,348	228,313	53.2	233,048
August	348,924	208,332	59.7	232,819
Total (8 months)	2,821,622	1,601,717	56.8	.....
September	331,857	207,766	62.6	244,467
October	362,732	230,695	63.6	231,094
November	347,053	196,461	56.6	226,941
December	346,978	173,314	49.9	223,692
Total (Year)	4,210,242	2,409,953	57.2	.....

Indianapolis Reports Good Demand

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 12, 1936—All indications now are pointing to a fine fall paper demand, according to local executives both in the manufacturing and wholesale end. A turn for the better occurred beginning the middle of last month and since that time the volume has increased steadily following a summer slump that was one of the longest the trade ever has seen, due to weather conditions.

In the fine paper field there has been a rather brisk increase since the first of the month, including most lines of ledgers, books and covers. Quite a bit of this demand is coming from printers who specialize in direct by mail advertising. They report that much work is in prospect for the remainder of the fall and early winter, particularly until the turn of the year. They expect the holiday trade to be considerably greater than it was a year ago.

The container trade also is good. Some of the larger manufacturers in this section are working overtime and still are finding it almost impossible to keep their order files cleaned. There has been little attempt to build up warehouse stocks, according to observers and it is doubtful if most of the factories will be able to attend to this matter until there is a decline in business. Box factories also are reporting a good volume. This summer was a distinct disappointment to the makers of all lines of paper which go the fruit and vegetable industry. Drouth and the freezing out of much fruit caused a shortage in the state and business dropped. However, other lines more than took care of the lack of demand in this particular field.

A continued demand is seen for building papers, which have had the best summer and fall business since the depression began. It is expected that some demand will continue until weather conditions become so severe that all outside operations are halted. And the trade is expecting even a bigger year to come.

Miller Paper Box Co. Starts at Springfield

SPRINGFIELD, Mass., October 13, 1936—The Miller Paper Box Company, a newly formed concern to make fancy paper boxes, will begin operations here soon and will employ about 100 persons when in full operation.

The Story of Zopaque

H. L. Rhodes[1]

An historical sketch of the commercial development of the newest brand of pure titanium dioxide and of this remarkable substance generally is an interesting phase of current opacifying white filler technology.

The important value and increasing application of titanium dioxide in the technology of paper making is fully reflected in various articles that have from time to time appeared in the journals devoted to paper making in recent years, and it is well that paper manufacturers should benefit by the enterprising search for opacifying white pigments that has been carried on for many years with the primary purpose of filling the demand for such materials existing in the paint, enamel, and lacquer industry.

There were many centuries during which the only white pigment substance currently available was white lead (basic carbonate of lead), then with the turn of the twentieth century, came, in rapid succession, continued improvements and developments in making available the other important white pigments, zinc oxide, basis lead sulphate, lithopone, zinc sulfate, titanated lithopone, the various titanium dioxide composites with barium and calcium compounds and finally the pure titanium dioxide itself.

The story of the successful and final commercial development whereby pure titanium dioxide is available to all who would find value in its use in a romance to read and will be covered only in an extremely brief manner in this article.

Discovered in 1791 by W. Gregor

The substance now known as the element titanium was discovered in 1791 by W. Gregor who was experimenting with black sands found at Menacan in England. A product obtained in the laboratory by Gregor resulted in the first written record known of the oxide which today has been identified as titanium dioxide.

The name titanium was not given to the metallic element however, until seven years later when one Klaproth in Austria investigated a mineral from Boinik called Hungarian red schorl. His terminology resulted in the derivation of the name titanium from the Titans of old and is justly symbolic of the great effort that is required to win the pure material from its native source.

Since the latter part of the eighteenth century leading scientists of the times have been found identified with work in the development of this product for modern industrial use.

First attempts to convert titanium bearing minerals to paint purposes were restricted to a chemical treatment of the mineral known as ilmenite, having the approximate chemical formula $FeTiO_3$.

Experimental Work Started at Niagara Falls

No attempt was made at first to secure a white pigment. Shortly after this, however, at Niagara Falls, experimental work was started with a view toward producing a white pigment. At first a composite pigment of titanium dioxide and precipitated barium sulphate was produced. For a number of years research work and production on a restricted scale was carried out by interests identified with the Titanium Pigments Company which eventually grew to larger volume as the properties of the material became better understood. In 1922 the research department of the Chemical and Pigment Company, Division of the Glidden Company, began active study to develop an extended titanium pigment having more desirable grinding and other properties than the extended barium sulphate pigment. However, after completion of laboratory work upon this development, a survey disclosed that the erection and operation of a plant to produce the titanium dioxide required for such pigment required a larger capital investment than was thought justified at that time. Accordingly, the manufacturers of titanium pigments were approached relative to furnishing a pure titanium dioxide. Negotiations were successfully carried out, and in 1926 a new titanium pigment appeared upon the market. This was a titanated lithopone developed by the Chemical & Pigment Company. This product still enjoys a large use and is known as Titanolith—the original titanated lithopone.

At that time there was only one plant producing titanium pigments in the United States. About the same time there were three plants completed in Europe for the production of titanium dioxide, ranging from a half ton to five-ton capacity per day. Arrangements were made by an American group to erect a plant in Baltimore in conjunction with these three European units. A plant was built at Baltimore, Md., and began operation under the direction of the writer in 1928 and in the early part of 1931 this plant was successfully producing twenty tons of pure titanium dioxide per day. In the meantime the original producers in the United States had erected a plant in East St. Louis having a capacity of approximately twenty-five tons per day of pure titanium dioxide, the majority of which was being used in extended pigments.

A Beginning in Earnest

In the spring of 1933, in spite of the rapid increase in plant capacity made over a five year period, the producers were unable to meet the demand for titanium dioxide. The Chemical and Pigment Company interests and the Metal and Thermit Corporation, who also had been carrying on research for a number of years relative to titanium dioxide production—joined in forming the American Zirconium Corporation for the purpose of manufacturing titanium and zirconium oxides. The incorporators of the American Zirconium Corporation had developed new improvements in the production of titanium dioxide which made possible the design and construction of a plant to produce a titanium dioxide of outstanding properties. Due to the thoroughness of this work, a plant for the production of TiO_2 was designed and erected in approximately one year's time.

The construction and operation of a titanium dioxide plant requires not only a large investment per pound of material produced but requires careful engineering in design and construction. It also requires constant and qualified scientific control at all stages of manufacture to an unusual degree.

A Process Using Ilmenite

At the present time Zirconium's plant uses the mineral ilmenite as a source of titanium dioxide, and the following description will be restricted to a process using ilmenite, although the company has developed to a plant scale an economical method of producing hydrolyzed titanium dioxide from the mineral rutile.

The ilmenite sands are received in bottom discharge

[1] Works Manager—American Zirconium Corporation.

cars and these cars are discharged directly into a concrete storage bin from which the ilmenite is reclaimed for operations by means of an overhead electrical operating bridge crane. Sulphuric acid is brought to the plant by means of a company-owned and operated tank boat. It is stored on the premises in a battery of steel tanks. All acid is handled by means of vertical submerged pumps operated by remote control.

The ilmenite and acid are mixed together in pans of a design adapted from practices in the fertilizer industry. All weights of acid and ilmenite are obtained automatically.

The product of reaction obtained from the treatment of ilmenite with sulphuric acid is known as "mass." The "mass" is conveyed from the mixing pans to storage bins by means of conveyors. From these storage bins it is reclaimed and fed into dissolving tanks, the soluble titanium sulphate and iron sulphate extracted with water and a separation of the soluble mineral salts is made from the unattacked ilmenite, the ilmenite being returned for further treatment with acid.

The solution of titanium and iron sulphates is treated with metallic iron to reduce all ferric iron to the ferrous state. After this is done the solution is filtered to remove all insoluble matter. The clear solution obtained from the filters is then evaporated in cast lead evaporators. Careful analytical control is necessary at this point to secure the proper sized particle when the solution is hydrolyzed. After concentration and laboratory approval of the solution, the titanium dioxide is hydrolyzed by boiling the solution in the presence of catalytic neuclei. There have been many patents issued to various workers covering the method of hydrolyzing titanium sulphate solution, and the hydrolysis step is known as one of the most important of the many steps in the manufacturing process of titanium dioxide.

The final titanium dioxide can be affected materially by the least deviation from adopted standards. The ingenuity of both scientific instrument manufacturers and analytical workers has been utilized to insure a uniform product in the plant of the Zirconium company.

More Problems to Solve

After hydrolysis it is necessary to filter the titanium dioxide. The separation of the titanium dioxide from the mother liquor remains one of the costliest steps in the process. Ingenuity in selecting special filter medium and alloys in the design of filters has solved the problem from an operating standpoint.

After the material is washed free from iron salts, it is fed to a continuous calciner where the material is both dried and calcined in one operation. Many types of calcining were originally tried but probably all manufacturers today have adopted the continuous rotary kiln. The passage of the material through the kiln requires considerable time. Control of both atmosphere and temperature in every foot of the kiln is vital.

When the material is discharged from the kiln it has reached an incandescent heat. It is cooled, ground in ball mills, passed over hydro-separators, subsequently dried, pulverized and packed in paper bags having a uniform net weight of fifty pounds each.

A staff of twelve trained chemists is required to control the finished product. Not only is careful chemical analysis made of the product, but continuous physical analyses are necessary to maintain the standards of quality in Zopaque, the registered name of pure titanium dioxide produced by the American Zirconium Corporation.

Agree on Freight Rate Increases

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 14, 1936.—The railroads of the country after months of work have finally agreed on certain freight rate increases which they will ask of the Interstate Commerce Commission to take effect on January 1 when the present emergency freight rate surcharges expire.

Under a heading of paper in these proposed rate changes the railroads have included; printing paper (other than newsprint), paper bags, wrapping paper, paper board, toilet and tissue paper, wall paper, blank, wall paper, oatmeal or ingrain. In connection with rates on these papers the roads propose; "Commodity and column rates in all territories to be increased 2 cents per 100 pounds." In a note on this subject the roads say:

"Revision of rates on printing paper, paper bags and wrapping paper and paper boards from, to and between points in Southern and Southwestern territories is now being worked out for the purpose of complying with Fourth Section denial order of the Interstate Commerce Commission. It is understood that in the event this adjustment is published prior to the increases here proposed in other territories, commodity rates resulting from the general Southern and Southwestern revision will be increased by the amounts here proposed concurrently with changes in other territories. In event the general revision is not made prior to the increases in other territories here proposed, the commodity rates now proposed for general revision in Southern and Southwestern territories will be increased by the amounts here proposed."

Dealing with boxes, fiber board, pulp board or straw board, the roads will propose to the Commission that "commodity rates in all territories be increased 2 cents per 100 pounds. Column 27½ in Official territory and between Official territory and the Northwest and Western Trunk Line territory to be changed to Column 27½ plus 2 cents per 100 pounds." Dealing with pulp board with wooden frames or with cleats attached, and fiber board or pulp board box material the roads will propose that the "commodity rates in all territories be increased 2 cents per 100 pounds."

Taking up paper carpet lining and plain felt paper the roads will propose that "commodity rates in all territories be increased 2 cents per 100 pounds, except that intraterritorially in Western Trunk Line territory community rates be increased 10 per cent with minimum of 2 cents per 100 pounds. Column rates in all territories to be increased 2 cents per 100 pounds, except that in I. F. A. territory where Column 27½ is now applicable there is to be no change."

Virginia Paper Co. Builds at Charlotte

CHARLOTTE, N. C., October 13, 1936—The Virginia Paper Company will invest $40,000 in a new building on Third street, it was announced by S. H. Mulford, Carolinas manager for the concern. The building will be erected on a lot between Mint and Graham street. The lot has a frontage of 120 feet on Third street and runs back 179 feet toward Fourth street. It will be a two-story structure of brick and concrete and will have 30,000 square feet of floor space. It will have a private railroad siding connected with the Piedmont and Northern tracks by a spur track.

Mr. Mulford said Walter Blair, New York architect who is drawing the plans, and W. C. Scott of Richmond, Va., vice president of the company, were in the city several weeks ago to consider arrangements for the new building which has been made necessary by increasing business in this territory. D. M. Blair of Richmond is president of the company.

Pacific TAPPI Discusses Corrosion

The Pacific Section of the Technical Association of the Pulp and Paper Industry met at the Everett (Wash.) Yacht Club, on Tuesday, October 6, 1936. Andreas Christensen, of the British Columbia Pulp and Paper Company, presided as chairman. The speaker was F. L. La Que of the International Nickel Company, New York, N. Y., and vice chairman of the TAPPI Materials of Construction Committee, who talked on "Metal Corrosion." There were seventy-five present. Among those present were the following:

Those in Atttendance

Gerald Alcorn, Weyerhaeuser Timber Company, Everett, Wash.; C. M. Anderson and William Anderson, Eagle Metals Company, Seattle, Wash.; Glendon Andrews, Everett, Wash.; Geo. S. Backus, Oliver United Filter Company, Portland, Ore.; Berk Bannon, Phil Bannon and Thos. J. Bannon, Western Gear Works, Seattle, Wash.; C. H. Belvin, Chromium Corp. of America, Portland, Ore.; Dr. H. K. Benson and W. L. Beuschlein, University of Washington, Seattle, Wash.; Jim Brinkley, Seattle, Wash.; Harold Brown, Everett, Wash.; G. S. Brazeau and Richard S. Buckley, Pulp Division Weyerhaeuser Timber Company, Everett, Wash.

Leo S. Burdon and John M. Carlson, Soundview Pulp Company, Everett, Wash.; Robert Carlson, Pulp Division Weyerhaeuser Timber Company, Everett, Wash.; R. E. Case, Tacoma, Wash.; Andreas Christensen, British Columbia Pulp and Paper Company, Vancouver, B. C.; Walter Clinch and O. E. Fox, Weyerhaeuser Timber Company, Everett, Wash.; Sidney M. Collier, Soundview Pulp Company, Everett, Wash.; J. V. B. Cox, Paper Makers Chemical Company, Portland, Ore.; J. M. Cyner, Stebbins Engineering Company, Everett, Wash.; Frank L. Dietz, Columbia Steel Company, Seattle, Wash.

James P. V. Fagan, Puget Sound Pulp and Timber Company, Anacortes, Wash.; James Fitch, Everett Pulp and Paper Company, Lowell, Wash.; Irving Guard, Seattle; A. S. Gerry, Harold G. Griep, De Vane Hamilton and L. E. Hill, Pulp Division Weyerhaeuser Timber Company, Everett, Wash.; Arthur Hilmo, Everett, Wash.; A. H. Hooker, Jr., Hooker Electro Chemical Company, Tacoma, Wash.; K. L. Howe, Westinghouse Electric and Manufacturing Company, Seattle, Wash.; W. F. Hynes, General Electric Company, Portland, Ore.

R. M. Inkster, Pulp Division Weyerhaeuser Timber Company, Everett, Wash.; H. M. Jones, Ohio Knife Company, Seattle, Wash.; John O. Kjome, Scientific Supplies Company, Seattle, Wash.; B. L. Kerns, Westinghouse Company Seattle; K. A. Knudson, Everett Pulp and Paper Company, Everett, Wash.; Dr. K. A. Kobe, University of Washington, Seattle, Wash.

W. J. McJannett, Eagle Brass Foundry, Seattle, Wash.; Walter Morris, Everett, Wash.; R. M. Mullen, Everett; William McNair, Weyerhaeuser Timber Company, Pulp Division, Chicago, Ill.; E. A. Norton, Weyerhaeuser Timber Company Pulp Division, Everett, Wash.; Fred Nicholson, Seattle, Wash.

H. James Okon, Lowell, Wash.; Adolf Orup, Soundview Pulp Company, Everett, Wash.; W. R. Payne, British Columbia Pulp and Paper Company, Woodfibre, B. C.; N. L. Peck, Columbia Steel Company, Portland, Ore.; R. T. Petrie, Bagley & Sewall Company, Portland, Ore.

R. H. Richmond, Electric Steel Foundry, Portland, Ore.; S. A. Ridpath and Carl Ries, Pulp Division Weyerhaeuser Timber Company, Everett, Wash.; Ed Riley, Seattle, Wash.; Albert S. Quinn, Stebbins Engineering Company, Seattle, Wash.

S. A. Salmonson, Soundview Pulp Company, Everett, Wash.; B. W. Sawyer, Foxboro Company, Portland, Ore.; Ferdinand Schmitz, Rainier Pulp and Paper Company, Shelton, Wash.; Harlon Scott, *Pacific Pulp and Paper Industry*, Seattle, Wash.; H. W. Sieberg, General Electric Company, Seattle, Wash.; J. M. Shedd, Everett Pulp and Paper Company Everett, Wash.; L. R. Sheldahl, Eagle Metals Company, Seattle, Wash.; H. H. Spaulding, Everett, Wash.; R. L. Stevens, Seattle, Wash.

Dr. H. V. Tartar, University of Washington, Seattle; Earl G. Thompson, Great Western Electro-Chemical Company, Seattle; Louis A. Wendt, Pulp Division Weyerhaeuser Timber Company, Everett, Wash.; A. F. Winklesky, Everett Pulp and Paper Company, Lowell, Wash.; Ralph Winship, Columbia Steel Company, Seattle, Wash.; Nelson Young, Everett, Wash.

Chemical Pulp Very Strong in Sweden

At the beginning of June, stocks at both sulphite and sulphate mills in Sweden were reported as above 100,000 tons below those at the same time in 1935, and the market situation in general for chemical pulp is characterized as very firm. Toward the end of the quarter not more than 5 per cent of the 1936 supply of sulphite pulp remained unsold, it is estimated, rendering the statistical position unusually favorable to sellers. Sales for 1937 of both sulphite and sulphate pulp, moreover, were estimated to have reached a total figure in the neighborhood of 1,200,000 metric tons which approaches 50 per cent of the calculated output for 1937, and is very high for this time of year. Some interest has been shown in 1938 deliveries but contracts concluded so far ahead have been small. At the end of the quarter there were indications that the usual summer slackness was setting in with the likelihood there would be little activity in this market before September. The market for sulphate pulp has been particularly strong. Not only is the 1936 production practically sold but only limited amounts of 1937 production are still available. The world consumption of this variety seems to be expanding rapidly and a program of new mill construction is planned in a number of producing countries.

Practically all of the 1936 production of mechanical pulp has been sold and by the end of June about half of the estimated 1937 output of wet mechanical pulp had been placed. Dry mechanical pulp has been in fairly good demand with prices stiffening. Prices on wet mechanical pulp showed little or no change during the period, a reluctance has been noted on the part of sellers to interest themselves in the unsatisfactory offers received. Very few sales were reported during the latter part of the quarter for this apparent reason. Stocks of mechanical pulp at the end of June were also a great deal lower than at the corresponding time in 1935.

New Schopper Pamphlet Out

Testing Machines, Inc., of 460 West 34th street, New York, have just issued a new illustrated pamphlet which describes concisely the Schopper Standard Paper Testers. Included in the testers described are the Full Sheet Desk Scale, the Automatic Desk Micrometer, the Pocket Dial Micrometer, the Portable Bursting Tester, the Rapid Tensile Tester and the Pocket Paper Scale.

Obituary

Norman Bardeen

KALAMAZOO, Mich., October 12, 1936—Norman Bardeen, president of the Lee Paper Company, Vicksburg, Mich., died in the Bronson Hospital Friday, October 9 from injuries received in an automobile accident in which his car was involved.

Mr. Bardeen who was 59 years old, was born in Syracuse, N. Y., July 17, 1877, the son of Mr. and Mrs. Charles William Bardeen. He received his early education at Syracuse, then entered Yale University for an academic course, graduating in 1900. He was engaged in the book publishing business with his brother for two years, after which he went to Otsego, Mich., where he entered the Bardeen Paper Company of which his uncle, the late George E. Bardeen was president.

When the Lee Paper Company was organized in 1904, Norman Bardeen was selected as its first secretary and has since been continuously connected with the company, serving as its president for nearly two decades.

Mr. Bardeen was a member of the Park Club, the Kalamazoo Country Club and Gull Lake Country Club, his hobbies being golf and boating.

Surviving him are his widow, Elizabeth Atwater Bardeen, two sons, Maxwell Bardeen, superintendent of the Lee Paper Company and Norman Bardeen, Jr., of the Edgewater Paper Company, Chicago; a daughter Elizabeth who resides at home, two sisters, Mrs. David Atwater of Rochester, N. Y. and Mrs. Allen Willett, Washington, D. C.

Funeral services were held at the residence, conducted by the Rev. John Wirt Dunning. Burial was at Vicksburg, Mich. The active pall bearers were Bernard Bishop, W. Verne Williams, Harold Dewey, Richard Knox, Rayford Chew and William Comstock, all associates of Mr. Bardeen in the Lee Paper Company.

Among the many personages prominent in the industry from out of town were W. H. Fleming, Chicago; M. Milton and W. J. Green, New York; C. C. Carpenter, Evanston, Ill.; C. W. Sherman and F. A. Healy, Chicago; Chas. Frankel, Harry Cohen, Syracuse, N. Y.; L. B. Hunter, E. E. Lloyd, M. Snyder, H. G. Prosser, J. A. Eilers and R. G. Benedict, New York.

Fred N. Putnam

BOSTON, Mass., October 13, 1936—Fred N. Putnam, traffic manager of the Nashua Gummed and Coated Paper Company and a prominent Masonic official, died at Nashua, N. H., October 12. He would have been 60 years old on October 16.

Mr. Putnam was widely known in manufacturing circles and was one of the organizers of the Nashua Traffic Club. At the time of his death he was Sovereign Prince of Oriental council, Princes of Jerusalem. He was a member of Rising Sun Lodge, A. F. and A. M. since 1912 and served as worshipful master and also as district deputy grand master in 1925 and 1926; a member of Aaron P. Hughes lodge of perfection and the New Hampshire consistory since 1916.

He is survived by his wife, Mrs. Elsie Putnam, two sons, Neil F. and Charles V. Putnam; two grandchildren and two sisters.

Malone Paper Co. Is Bought by Syndicate

MALONE, N. Y., October 13, 1936—The Malone Paper Company has been purchased, subject to court approval, by a syndicate which will put $75,000 cash into the business and will have the mill in operation in a few weeks. Employment will be provided for about 100 men. The syndicate, headed by George McKee, Jr., of Montreal, has made an offer to the receivers of the company, and the receivers have accepted the offer. The sale awaits only the approval of the federal court, and will be acted upon in the near future by Federal Judge Frederick H. Bryant.

Get Mill Ready to Start Operations

In the meantime the new owners will start work immediately putting the mill in condition for operation, although no large amount of money will be spent on it until after the sale is approved and clear title is given.

Attorney W. L. Allen, of Malone, is syndicate manager of the new firm which will be known as the Malone Syndicate. Clarence E. Kilburn and Charles H. Clark, who with Louis Bittner, of New York, comprise the receivers, accepted the syndicate offer. The mill will be put in operation first in newsprint or coarse paper but will be changed to produce finer grades of paper.

Mr. McKee to Have Charge

Mr. McKee, the head of the company, is a graduate engineer and a practical paper manufacturer. He has connections with the industry in Canada. Mr. McKee will come to Malone about October 17 to make his home here and will take charge of the operation of the mill.

The mill, which has been closed since March, 1932, will be started as soon as possible after the sale is approved, which may require some six weeks. Most of the old employes will be called back.

Purchase Price to Be Paid in Bond

The purchase price will be paid in bonds. This necessitates raising money enough to pay off the back taxes and some urgent bills. The public may be given an opportunity to purchase some of the bonds. They will be a lien on the mill which with $75,000 spent on it will be restored to a value perhaps equal or exceeding the full amount of the bond issue.

The receivers feel very gratified over the proposition because this is the only real offer they have had for the mill as a going concern. They have refused all offers to junk the mill as that would have meant the end of the paper industry in Malone.

The receivers will accept the bonds and disburse them under the direction of the court. The proposition involves no cash for the property. It is a condition of the transaction also that the local taxes on the property be reduced about one-third for a period of five years. This matter will be brought before the town and village assessors.

Western Tablet Corp. on Curb

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 14, 1936—The Federal Securities and Exchange Commission has issued an order granting the New York Curb Exchange application "for unlisted trading privileges in Western Tablet and Stationery Corporation stock, no par value, on the New York Curb Exchange, be and is hereby granted effective upon notice to the Commission of the issuance of such common stock."

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Brunswick, Ga.—The Brunswick Pulp & Paper Company, Brunswick, recently organized under Delaware laws with capital of $1,000,000, by interests connected with the Mead Corporation, Chillicothe, Ohio, manufacturer of coated and other paper stocks, has concluded negotiations for purchase of tract of about 200 acres of marsh lands near Brunswick, to be used as a site for new mill. Reclaiming of portion of property, approximating 40 acres, will be placed under way at early date; this tract will be used for a new sulphate pulp and bleaching mill. Initial plant will consist of several large operating units, equipped for a capacity of 150 tons per day, with pumping station, power house and other mechanical structures, estimated to cost about $3,000,000, including machinery. The larger part of output will be used by the Mead Corporation at its Chillicothe mills, which will have a financial interest in new company and closely identified with operations. Charles R. Van de Carr, vice-president of the Mead company will be president of the Brunswick organization.

Ironwood, Mich.—The Marathon Paper Mills Company, Menasha, Wis., has approved plans for installation of new dry kiln unit at pulpwood properties at Ironwood, with initial capacity of about 140,000 feet of material. It is proposed to place work under way at once. No estimate of cost has been announced.

Hoquiam, Wash.—The Grays Harbor Pulp and Paper Corporation, Hoquiam, has awarded general contract to the Austin Company, Dexter-Horton Building, Seattle, Wash., for proposed additions to sulphate pulp mill, recently referred to in these columns, and work will be placed under way at once, to be completed early next year. Several new units will be built, with installation of additional equipment for digester, screening, bleaching and other departments. It is proposed to increase capacity of the mill about 50 tons per day. Entire project will cost close to $150,000, with machinery. W. S. Lucey is general manager.

Los Angeles, Cal.—The Artesian Paper Box Company, recently organized with capital of $25,000, plans early operation of plant in or near Los Angeles, for manufacture of a line of paper boxes and containers. New company is headed by J. W. Weir, Los Angeles; and W. J. Garrett, El Monte, Cal. It is represented by Clarke & Bowker, 411 West Fifth street, Los Angeles, attorneys.

Windsor, N. C.—The Kieckhefer Container Company, West Canal street, Milwaukee, Wis., manufacturer of corrugated and other paper boxes and containers, is said to be closing negotiations for purchase of large tract of land in vicinity of Windsor. Project will comprise a large group of units, equipped for extensive output, and is reported to cost over $1,000,000, with equipment. Company is affiliated with the Eddy Paper Corporation, with mills at Three Rivers and White Pigeon, Mich. J. W. Kieckhefer is president.

West Monroe, La.—The Brown Paper Mill Company, Inc., has approved plans for construction of a water storage basin for service at local mill. A tract of about 2,000 acres of land has been acquired south of West Monroe Levee and will be used for this purpose. Contract for construction has been awarded to the Forcum-James Company, Dyersburg, Tenn., and work will begin at early date. The basin will represent an investment of about $150,000, including land purchase.

Fort Madison, Iowa—Fire recently damaged a portion of local mill of the Hinde and Dauch Paper Company, manufacturer of corrugated fiber and other containers. An official estimate of loss has not been announced. The damage will be replaced. Company headquarters are at Sandusky, Ohio.

New York, N. Y.—The Flintkote Company, 50 West 50th street, New York, manufacturer of roofing and other building papers, felts, etc., has authorized an expansion and improvement program at different mills to cost about $2,000,000, including new mill unit now in course of construction. Work will comprise a new mill at Los Angeles, Cal., consisting of several large units for production of boxboard and felt specialties. It will cost approximately $1,000,000 of fund noted, including buildings and equipment. Site has been selected and work is scheduled to begin soon. New plant will be for the Pioneer-Flintkote Company, 5500 South Alameda street, Vernon, Los Angeles, a subsidiary of first noted company, which will be active in the construction and operate the plant on completion. Approximately $750,000 of gross amount noted will be used for construction of new additions to mill at Little Ferry, near Rutherford, N. J., with installation of additional equipment for large increase in present capacity, as well as manufacture of new specialties. The remainder of the fund, about $250,000, will be expended for new plant now in course of erection at Chicago Heights, Ill., to be equipped for large capacity and scheduled to be ready for operation at early date.

Garwood, N. J.—The Sonoco Products Company, manufacturer of paper specialties, including cones, tubing and kindred products, has begun construction of new addition to local mill, recently referred to in these columns. It will be one-story, 80 x 150 feet, reported to cost over $50,000, including equipment. It is proposed to have unit ready for service in near future. The Mahony-Troast Construction Company, 657 Main avenue, Passaic, N. J., is general contractor. Frederick L. Smith, 21 East Fortieth street, New York, N. Y., is engineer. Main offices of company are at Hartsville, S. C.

Charlotte, N. C.—The Virginia Paper Company, Inc., 140 Virginia street, Richmond, Va., has approved plans for expansion in branch at 601 South Cedar street, Charlotte, including construction of new two-story building at Mint and Graham streets, Charlotte, totaling about 30,000 square feet of floor space, for storage and distribution.

It will cost about $45,000, with equipment. General contract will be awarded at early date. Walter D. Blair, 154 East 61st street, New York, N. Y., is architect. D. M. Blair is president of company.

Waterbury, Conn.—The Waterbury Corrugated Container Company has been organized with capital of $40,000, to operate a local plant for the manufacture of corrugated and other paper boxes and containers. The incorporators include Richardson Bronson, 136 Grand street, Waterbury, and John P. Kinsey, New Haven, Conn.

Brooklyn, N. Y.—The Republic Paper Stock Company, 104 Wythe avenue, has arranged for lease of three-story building at 5-9 LaGrange street, totaling about 25,000 square feet of floor space, and will use for expansion in connection with storage and distribution. Possession will be taken at once.

Toronto, Ont.—Mono, Ltd., Toronto, recently formed as a Canadian subsidiary of the Mono Service Company, Verona avenue and Oraton street, Newark, N. J., manufacturer of paper drinking cups and other paper containers, has leased space in former plant at Dominion Motors Company, Leaside, Toronto, totaling about 16,000 square feet of floor space, and will improve and equip at once for new branch plant. Machinery will be installed for large capacity.

Port Arthur, Ont.—The Thunder Bay Paper Company, Ltd., manufacturer of newsprint, has resumed operations on a capacity schedule at local mill, giving employment to increased working force. All divisions will run full for an indefinite period. Company is affiliated with the Abitibi Power & Paper Company.

New Companies, Etc.

Brooklyn, N. Y.—The Green Mountain Gummed Tape Company, Inc., has been incorporated to manufacture and deal in gummed paper tape and kindred paper specialties. New company is represented by Duberstein & Schwartz, 32 Court street, Brooklyn, attorneys.

Laurel, Miss.—The Masonite Corporation, manufacfacturer of insulating board products, wood pulp specialties, etc., a Delaware corporation, has filed notice of increase in capital from $3,000,000 to $5,000,000, and from 600,000 to 700,000 shares of stock, no par value, for general expansion. As previously noted in these columns, company will carry out extensions at Laurel mill for large increase in present capacity.

Pomona, Cal.—The Pomona Paper Products Company, Inc., has been incorporated with capital of 2,500 shares of stock, no par value, to manufacture and deal in paper goods. Hildrade Chabot is one of the incorporators. Company is represented by Gustave L. Goldstein, 325 West Eighth street, Los Angeles, Cal., attorney.

New York, N. Y.—The Newark Waxed Paper Company, Inc., has been chartered with capital of $20,000, to manufacture and deal in waxed papers and kindred specialties. New company is represented by Joseph A. Teperson, 2 Lafayette street, New York, attorney.

Waxes

The American Cyanamid and Chemical Corporation has just issued an instructive booklet on Waxes in which their application in commerce is described.

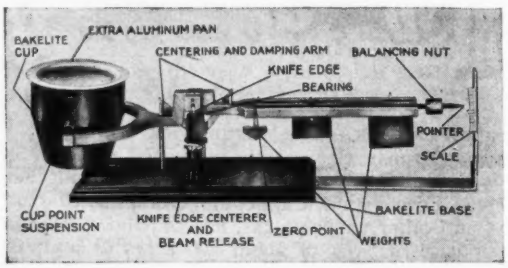
The booklet contains tables showing wax type acids and the higher wax type alcohols; the types of waxes, their origin, commercial data and applications; their solubilities in a limited number of solvents and the chemical and physical properties of the waxes as they are found in commerce.

New Bennett Balance

Testing Machines, Inc., has just undertaken the sale of a newly developed gram scale which took eight years to perfect.

The new scale is known as the Bennett Balance and is sensitive to 1/100 gram. It weighs up to 100 grams and as it is compact, with no loose parts, it may be carried in an overcoat pocket on inspection and testing trips at a distance from the laboratory.

The new Bennett Balance is made of tested materials



THE BENNETT BALANCE

and its construction will appeal to laboratories desiring the best equipment. Its Bakelite pan is unaffected by practically any substance that can come in contact with it. The steel knife edge and agate bearing gives long life and accuracy.

This unique gram scale weighs to one decimal point farther than the usual low-priced counter scales and serves nearly every laboratory purpose short of precise analysis.

Further information regarding the new Bennett Balance may be obtained from Testing Machines, Inc., 478 West 34th street, New York, N. Y.

A New Line of Anti-Friction Bearing Casters Introduced by Bond

The Bond Foundry and Machine Company of Manheim, Pa., has placed on the market a new line of anti-friction bearing truck casters. They report that Hyatt Roller Bearings are standard equipment in these new units.

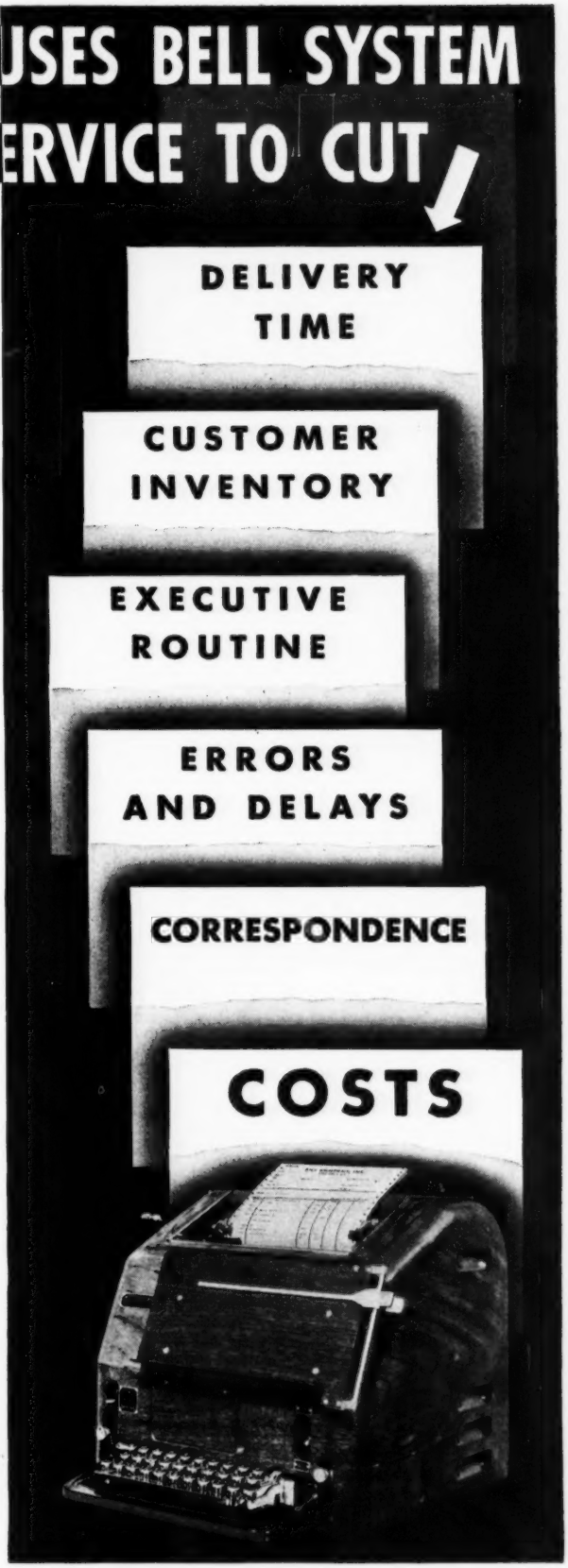
For several years Bond manufactured their own bearings for truck caster service and with a greatly increased demand for their casters it was deemed advisable to discontinue this unit of their bearing department and devote the much needed space and man power to the building of casters exclusively.

Having made bearings of all types for a number of years, and knowing what to expect in and of such equipment, the Bond Company state that obtaining a proper source of supply to replace their own Industrial Bearing Department was no easy task.

For their changeover a bearing had to be found which would measure up to their own quality of manufacture, dependable operation, and be favorably known to the purchaser as well.

Thus after negotiations with several leading bearing manufacturers and considerable test work with various makes of bearings they chose Hyatt. The Bond Company claim that with this bearing they feel assured they have a product which will serve all their requirements of quality construction, long life, freedom from constant maintenance and one possessing a favorably known name. Hence the entire line of Bond anti-friction bearing casters, made in both their American and Canadian plants, will be Hyatt-equipped from now on.

AMERICAN BRASS USES BELL SYSTEM TELETYPEWRITER SERVICE TO CUT



THE AMERICAN BRASS COMPANY of Waterbury, Conn., wanted fast, accurate handling of orders and deliveries, and turned to Bell System for help. Private Line Teletypewriter Service was installed between the Waterbury headquarters and the New York City sales office — as well as from Waterbury to plants at Ansonia and Torrington, Conn. Teletypewriter Exchange Service was added at sixteen other plants and branches scattered across the country.

Now orders teletyped in New York are instantly reproduced in Waterbury. No time is lost in transmission, and both offices have identical typewritten records. In addition, shipping instructions, price corrections, credit inquiries, and many other matters are handled entirely by teletypewriter.

American Brass reports six salient advantages from teletypewriter service: (1) Next-day deliveries are made on practically all orders. (2) Faster delivery has made it possible for customers to reduce inventories and release capital tied up in stock. (3) Sales executives handle inquiries with less time and effort. (4) The instant, accurate transmission of orders and information has largely eliminated errors and delays which would have proved costly. (5) Because connected offices have identical copies of all communications, no confirmation is necessary — time and labor are saved. (6) There has been a definite reduction in interoffice communication costs and a closer coordination of separate company units.

"Typing-by-wire" is so efficient, so flexible that it can probably perform a similar service for your business. Why not discuss it with your local telephone office? No obligation, of course.

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FUTURE MEETINGS

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Fourth Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway, Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

"LESSONS OF THE PAST"

The Newsprint Service Bureau, one of the outstanding associations of the paper industry, has for some time past been publishing in the form of a double page spread advertisement in the *Editor and Publisher,* a publication having a wide circulation among the daily newspaper publishers of the country, a very interesting series of articles telling the story of newsprint. In these articles, among other pertinent matter, the manufacturing and economic problems with which the newsprint manufacturers have to contend are brought out. These are well known to members of the paper industry, but seemingly at times are not adequately appreciated by the customers of newsprint manufacturers, the daily newspaper publishers. So it seems a splendid idea to endeavor to educate these gentlemen of the press in this manner, with the hope that the little lessons which have been appearing weekly for some time past will imbue them with a spirit of cooperation that unfortunately has not always seemed to exist in the important matter of arranging for their newsprint supplies.

In fairness it should be stated that some of these little articles could be read with profit by the newsprint manufacturers as well as the daily newspaper publishers. This is especially true of a recent one entitled "Little Lessons of the Past," which is reprinted herewith because it brings out the truth of the old maxim "that every action has its reaction" and that the consequences of any action may be decidedly unpleasant if intelligent foresight and good judgment are not employed.

In "Lessons of the Past" it is stated that "high prices bring their own antidote—either decreased use or increased supply. In the case of newsprint paper both cures were applied—one quickly, the other more slowly. Publishers used extraordinary means to keep down consumption in 1920. Paper manufacturers began installing new machines. Timber limits and water powers were acquired, followed by the building of new mills to make newsprint.

"Restriction in consumption lasted only a few months. Thereafter paper was used freely again. The era of manufacturing expansion lasted 12 years, during which time 115 new machines of 10,000 tons daily capacity were added to the North American newsprint industry. Only one new machine has gone in since 1931 and it is more of a replacement of old machines than of additional productive capacity.

"Contract prices which hit their peak of $130 a ton at the mill during the last quarter of 1920 had dropped 46 per cent by the beginning of 1922. Spot prices had gone down still further. There was an upswing of over 20 per cent in consumption in 1922 from the depression in 1921. Prices rose 7 per cent at the beginning of 1923. But this was the last rise in newsprint prices for 13 years. In only two of these 13 years were newsprint prices stationary—in all others they were successively lower. General commodity prices varied little from 1922-1929. During these seven years of remarkable stability in commodities, newsprint prices fell 16 per cent. Newsprint consumption in the United States rose from 2,000,000 tons in the brief depression of 1921 to nearly 3,800,000 tons in 1929. But output from old and new machines kept pace.

"Then came the break at the end of 1929. Consumption went down for four successive years. Commodity prices tumbled and newsprint followed suit. Commodity prices hit bottom, then turned upward by the end of 1932. Newsprint made its low in 1933 and stayed there for three years. Approximately equal amounts of newsprint paper were used in the United States in 1923 and 1932. On the basis of the average New York City contract price, the cost to the users was $227,000,000 in 1923 and $135,000,000 in 1932. The customer benefited to the extent of more than $33.00 a ton in 1932 over what he had paid nine years earlier. Carrying the comparison further, 3,500,000 tons used in 1936 will cost the publishers $90,000,000 less than the same quantity used in 1928.

"The combination of low market price and decreased demand made it impossible for invested capital to receive any return. In fact 40 per cent of the productive capacity of the industry went into bankruptcy or into the hands of its creditors. The forces set in motion in 1920 and prior thereto had reacted with a vengeance. In the earlier years the publishers paid excessively high prices for the paper they used. In the later years the manufacturers had received as excessively low prices for the paper they made. Hindsight again makes it clear that such great swings in the market of an essential commodity are in the long run hurtful to all concerned."

Dr. Herty Finds Fat in Pines

A press dispatch from Savannah, Ga., says that discovery in pine trees of fat, containing the same properties as animal flesh, was announced today by Dr. Charles H. Herty, director of the pulp and paper laboratory of Savannah.

He also found a cheap, easy way of extraction which he said promised two new industries. Ridding the trees of fat, he declared, makes it possible for the first time to manufacture the finest grades of bond and book paper from the Southern forests.

The fats offer a new by-product industry. They are useful for making soap and for mining flotation processes. There is a mixture of fatty acids and waxes. One tree acid is oelic, a potent ingredient in the human body sought by physicians for medical experiment. Another is linoleic, used for paints. In the waxes is cholesterol, which can be converted into Vitamin D.

Dr. Herty discovered the fats while trying to make book and bond paper out of Southern pine, a project which he undertook two years ago after he had developed methods of making newsprint out of all grades of Southern pine. His pioneering work is sponsored by the industrial committee of Savannah and financed by the Chemical Foundation, Inc., of New York City.

The handicap of making book paper was what the paper industry calls "pitch," the matter which shows as an occasional slightly discolored spot in paper. It is not pitch, but Dr. Herty said no one knew exactly what it was.

To find out he sliced sections of wood thin as tissue, colored the slices with biological stains, and found that the "pitch" was made of what botanists call "ray" or pasynchremous cells. These are the "living" parts of the wood, which a few years ago would have been identified simply as "protoplasm."

Chemical analyses showed that they were filled with fats, fatty acids and waxes. These cells, visible only under a microscope, are extracted by diluting the pulp and letting it run over a porous screen. The small cells fall through with the water.

There is no machinery. At the end of the downgrade Dr. Herty has a new type of pulp, freer from fat than even the spruce pulps now used for the best grades of paper. Another new process separates the water from the fat.

Spruce trees contain only about 1½ per cent of the fats, Dr. Herty stated. The Southern pines all contain much more; one, loblolly, has 8 per cent of fat.

"If all the sulphite pulp (the newsprint pulp) used in this country annually were made from Southern pine it would mean a daily production of fats and waxes of about 420,000 pounds," said Dr. Herty. "None of these fats is now being extracted here or elsewhere."

Getting rid of the fat in trees has been a big stride for another of Dr. Herty's "dreams," the making of clothing from Southern pine forests. The fat in these trees has been a barrier to producing rayon.

Preliminary tests of the "fatless" pine would indicate that it will make standard rayon.

Paper Products Corp. Incorporates

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 13, 1936—Articles of incorporation have been filed with the Indiana secretary of state by Paper Products Corporation, 123 South Missouri street, Indianapolis, formed to manufacture paper products. The corporation has 1,000 shares of capital stock at no par value and the incorporators are Charles E. Phillips, Wendell W. Phillips and Edward P. Fillion.

Production Ratio Report

(The statistics are based upon paper production reports to the American Paper and Pulp Association)

COMPARATIVE MONTHLY SUMMARIES

Month	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.6%	69.4%	.....
June	80.7%	72.3%	.....
July (b)	80.6%	67.8%	.....
August	81.6%	70.9%	.....
September (c)	.....	75.0%	59.4%
October	.....	75.6%	64.7%
November	.....	75.3%	61.7%
December (a)	.....	74.3%	62.1%
Year	.....	71.2%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936		CORRESPONDING WEEKS, 1935	
*September 5	81.3%	September 7 (c)	76.6%
*September 12 (c)	85.8%	September 14	72.7%
*September 19	85.9%	September 21	76.1%
*September 26	84.0%	September 28	74.9%
*October 3	84.5%	October 5	75.2%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks				
Ratio Limits	Sept. 5, 1936	Sept. 12, 1936	Sept. 19, 1936	Sept. 26, 1936	Oct. 3, 1936
0% to 50%	83	80	65	63	48
51% to 100%	249	252	261	257	183
Total Mills Reporting	332	332	326	320	231

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

Month	1936	1935	1934	Month	1936	1935	1934
January	61%	61%	....	July	69%	59%	....
February	67%	67%	....	August	75%	65%	....
March	68%	67%	....	September	....	69%	62%
April	70%	61%	....	October	....	76%	63%
May	68%	61%	....	November	....	70%	56%
June	68%	65%	....	December	....	60%	(a)53%

Week ending Sept. 5, 1936—78%
Week ending Sept. 12, 1936—66%
Week ending Sept. 19, 1936—81%
Week ending Sept. 26, 1936—82%
Week ending October 3, 1936—80%

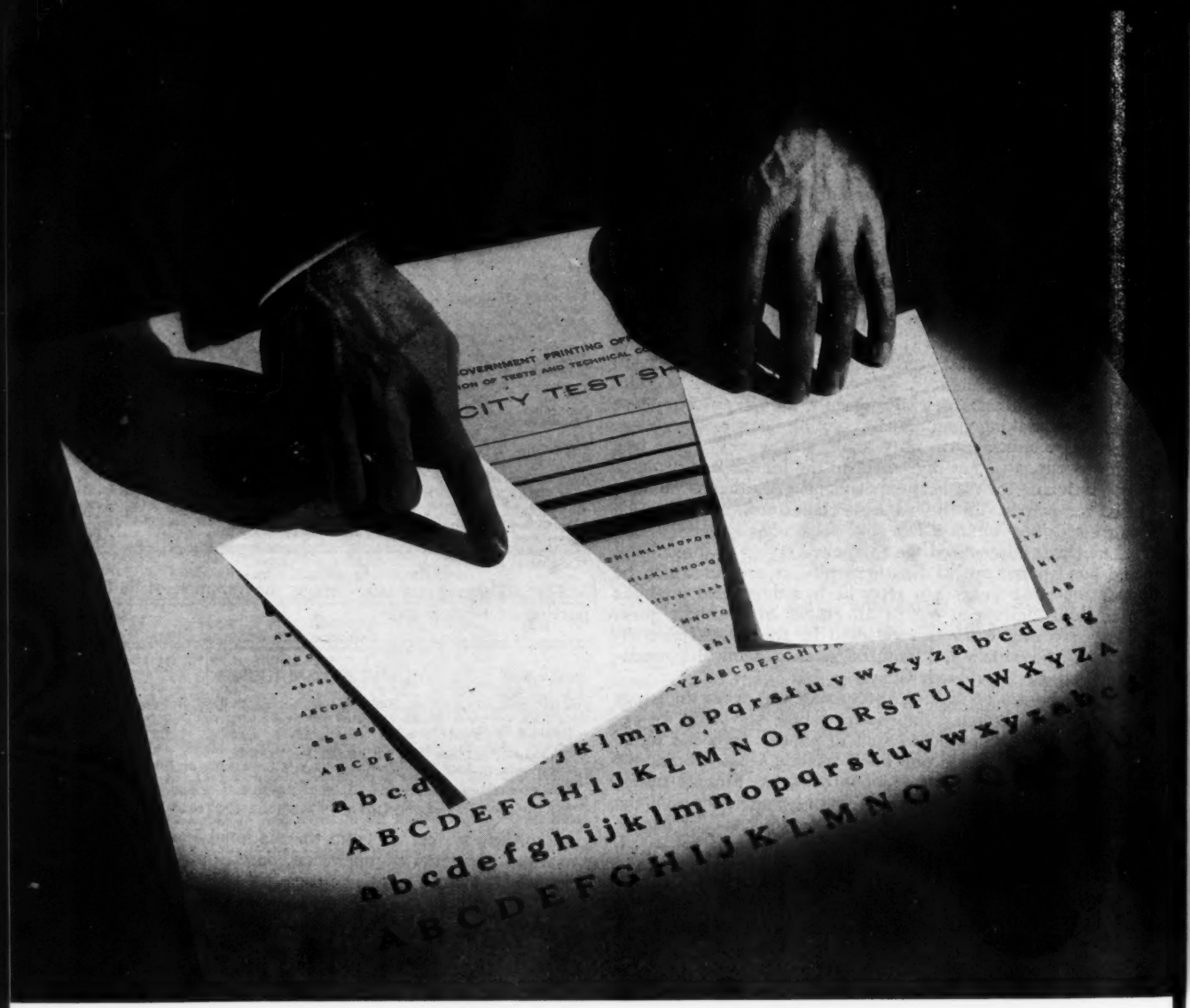
Boston Paper Industry News

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 12, 1936—The Pionier-Carmer Company, box board dealers, donated a cup in memory of Mark B. Claff, founder of M. B. Claff & Sons, box manufacturers, Randolph and Brockton, to be awarded to the winners of the baseball game between the Randolph and Brockton factories. The cup is inscribed "Mark B. Claff Trophy Randolph vs. Brockton." A game was played October 3, in which the cup was awarded to the Brockton team, which won by a score of 15-7. Paul Poinier personally presented the cup to the captain of the winning team. The cup is to be played for annually and the name of the winning team to be inscribed on it.

The Harvard Paper Exhibit, brought together by William Bond Wheelwright and shown at the Widener Library during the Harvard Tercentenary, may be seen during October in the new Exhibit Hall of Storrs & Bement Company. The exhibit includes a most interesting collection of paper facts and fancies, including demonstrations of the state of permanence and deterioration of printing paper.

Robert M. Stone, treasurer of the Stone & Forsyth Company, has been passing a week in Hanover, N. H., and the White Mountains, accompanied by Mrs. Stone.



"Now there's an OPAQUE sheet"

Salesmen are encountering many comments such as this when offering the new improved lines—more opaque, whiter and brighter papers that arouse enthusiasm among paper dealers, printers and consumers.

Because the desired degree of these qualities can be obtained by CRYPTONE and ALBALITH Zinc Sulphide Pigments, which are available in a range of strengths to meet a variety of requirements, the use of these pigments is increasing.

The trade is looking for these qualities. . . . Our Technical Service Department is ready to cooperate with you on any phase of this development.

New Jersey Zinc

THE NEW JERSEY ZINC COMPANY 160 FRONT STREET, NEW YORK

ZINC SULPHIDE PIGMENTS IN PAPER

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Present Opportunity of Management*

Of particular interest to the paper industry in the discussion of "The Present Opportunity of Management" by Henry S. Dennison, President of The Dennison Manufacturing Company at the General Management Conference of the American Management Association, held in New York last June. This is now made available in printed form through General Management Series, 128, published by the American Management Association, 330 West 42nd Street, New York.

Mr. Dennison is one of the pioneers of the Scientific management movement in this country. At one time, he was President of the Taylor Society. He was also active in establishing the International Management Institute at Geneva. His successful practice of his preachments is exemplified in the operations of his own company.

Speaking in a philosophical vein, Mr. Dennison pointed out that scientific marketing, including selling and merchandising, is a field in which management can find its greatest opportunity today.

It is the place of management to make the world go so that the optimum of satisfaction, the best aggregate of satisfactions, are attained. Management's job is to integrate workers, customers, and financial interests to that end.

One of the fundamental laws of reasonable management is to face the realities of a situation and to do one's best under the actual conditions.

Reviewing early experiences in the factory management field, Mr. Dennison recalls the difficulties encountered in obtaining the facts of a given situation. He points out that difficulties seemed insurmountable but that nine times out of ten, they disappeared when the facts were obtained.

During the War scientific management was developed very widely in our factories. Being confined to the factory, we made one of the blunders against which scientific management itself preaches, namely, unbalance. Everyone had a job. The idea of a man not having a job because labor saving machinery was installed was nonsense in those days. Now it is obvious and apparent that marketing cannot be neglected by scientific management.

The difficulties of obtaining knowledge of facts and conditions in marketing are far greater than in manufacturing. Many selling departments, according to Mr. Dennison, are run without management knowing the first thing about the facts and conditions. Some do not even know what prices are made.

Mr. Dennison discovered from his own experience that prices do not always follow the classical economic theory that a reduction of price will stimulate sales. He believes that we do not know anything about the effects of price changes. We must have scientific marketing above everything. The present chaotic pricing is not making an economic adjustment of prices. It does not sell more goods.

Mr. Dennison believes that scientific pricing would create an intense interest in trade associations in order to get orderly pricing. We will overdo it, of course, but we must first have order to find the economic flows and changes in demand. It will be full of blunders at first but Mr. Dennison believes that it is the only way to develop order in a state of chaos.

In the discussion from the floor Mr. Dennison said among other very interesting things that "Market demand is not conditioned by cost, but by how much the buyers want the merchandise, and they will pay five hundred times the cost of some things, as we know, and won't pay the cost of other things."

The presentation is clear and well coordinated and Mr. Dennison's experience adds authority to his statements. His remarks on our unscientific pricing are well taken. Management needs to know a great deal more about what modern economists call the "elasticity" of demand for their products as a guide to price policies. L. T. S.

* An address by Henry S. Dennison, reveiwed by the TAPPI Production Management Committee.
This is the first of a series of items to be reviewed by the TAPPI Production Management Committee to give publicity to selected articles published in the management field.

"Evidence of Paper Values"

As a companion piece to its well-known and highly informative book, "Facts About Paper Values", the L. L. Brown Paper Company of Adams, Mass., has just issued an unusually attractive portfolio entitled, "Evidence of Paper Values".

Resembling the book in both appearance and size, the portfolio differs in the fact that the contents consist of carefully selected specimens of records and stationery on the complete range of L. L. Brown papers. The processes represented are those which are most suited to high-grade papers, and the specimens are so arranged as to facilitate reference to each L. L. Brown grade, the Company's 1936 catalog, which is included, completes the picture by giving detailed information about L. L. Brown papers in general and each grade in particular.

The portfolio is unique in the fact that, while sampling a mill's complete line of record and correspondence papers, each of the samples is made from none but white linen and cotton clippings. Another distinctive feature, which indicates the outstanding character of the collection, is the presence of 100 per cent, 85 per cent and 75 per cent rag paper only.

Increasing Use of Back-Pressure Engines in European Paper Mills

By C. H. S. Tupholme[1]

A striking feature of European paper mills is the attention being devoted to power plant, particularly to the newer means of generating heat. As a result of the severe competition now in force, power plants are being modernized and an increasing number of mills are employing back-pressure engines which supply all the heat required as a byproduct of power generation.

The possibility of combining economically the generation of power and heat exists in the greater majority of mills where steam is employed for driving machinery and also in the manufacturing processes. In some cases, of course, the mill is already equipped with a source of power which is working well, though even in such cases the question of power and heat production from the same source has proved well worth investigating, and it has very often been found that a back pressure engine operating in conjunction with the existing plant as an auxiliary power generator, can afford a businesslike proposition and permit an appreciable reduction in working costs.

The steam for heating purposes and manufacturing requirements is usually at pressures between 7 and 45 lb. per sq. in., and sometimes as high as 90 lb. per sq. in. It has been usual to generate such low pressure steam in special boilers, or to use steam from high pressure boilers through reducing valves, any requisite power being obtained from condensing engines. In the majority of cases, however, it is found that the steam pressures employed are much higher than necessary, because the temperature of the steam is of less importance than obtaining the required quantity of heat in the heating apparatus. This quantity is equal to the difference between the heat content introduced with the steam and the amount carried away in the condensate.

In some cases it is found that by lowering the pressure in an existing distributing system the pipes are too small, since low pressure steam will travel at a lower speed, reducing correspondingly the amount of heat transmitted per hour. Such a drawback can only be overcome by a suitable modification of the system or an increase in the surface of the heating coils.

When, however, a certain steam temperature is essential to the process, the pressure of the heating steam in the entrance to the apparatus must be high enough to ensure that this temperature is available not only as a superheat temperature but also as the temperature of saturation. The actual process of heating, i.e., the release of the heat contained in the steam, takes place at the saturation temperature and not at the superheat temperature prevailing at the inlet, the bulk of the heat being liberated as soon as condensation begins to take place. This does not mean that superheat in heating steam is useless, it is in fact desirable, but only to an extent sufficient to avoid condensation in the distributing main and to ensure that the steam reaches the apparatus in a dry saturated state. In other words, the whole of the heat due to superheating can be utilized in the heating installation, but it would be incorrect to expect that this utilization takes place at the corresponding superheat temperature in the apparatus. In order to obtain the highest economy from an exhaust steam plant, it is important to keep the pressure of the heating steam as low as possible, and in planning such an installation the utmost attention must be given to this point.

In cases where the engine supplies an excess of steam during comparatively short periods only, this steam instead of being released to the atmosphere can be led into a steam accumulator.

Regulation of a Back Pressure Engine

It has frequently been found possible to effect the regulation of a back pressure engine by adapting its output to the heating steam demand. With this method of governing, the engine valve gear, instead of being controlled by a steam governor, is put under the control of a back pressure steam regulator. This method, however, can only be applied to cases where another power source equipped with a speed governor, such as a second steam engine, Diesel engine, water turbine, etc., is mechanically coupled to the back pressure engine as shown diagrammatically in Fig. 1, which shows a back pressure engine operating in conjunction with another source of power.

Non-compliance with this condition has the effect that, with a reduced heating steam demand, for instance, the output of the engine A no longer corresponds to the power required on the shaft X. If, however, the whole system is connected with an auxiliary power source B, the tendency to a fall in speed on the shaft causes the speed governor G of the auxiliary engine B to regulate for an increase in its output, whereby the speed is re-established to normal. In such a manner, therefore, the auxiliary power source B supplements the power developed by the back pressure engine A, the latter serving the purpose of a reducing valve inserted into the heating steam main H. The mechanical power developed in such cases can be defined as a byproduct of the heating process.

If in such an installation the speed governor fitted to the auxiliary power source is rendered inoperative for some

[1] Runcton Cottage, Lower Bourne, Farnham, Surrey, England.

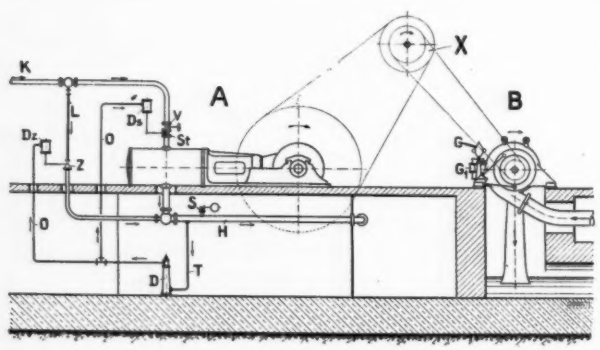


FIG. 1

A. Back-pressure steam engine. B. Auxiliary source of power. X. Shafting. K. Steam pipe from boiler. H. Piping for heating system. L. Live-steam make-up piping. D. Oil-operated pressure-regulator. D_s. Servomotor operating the valve gear. D_z. Servomotor operating the live-steam make-up valve. S_t. Cut-off valve. Z. Live-steam make-up valve. V. Stop valve. S. Safety valve. T. Steam pipe to pressure regulator. O. Pressure-oil piping. G. Speed governor of the auxiliary source of power. G_1. Servomotor for speed governor of the auxiliary source of power.

reason on such as the breaking of a belt, there is a risk of the speed of the back pressure engine exceeding the safe limit.

As a safeguard against this contingency, back pressure engines are always equipped with safety governors which prevent any dangerous rise in the speed by closing the engine valve gear.

The use of a back pressure engine in conjunction with another source of power represents the most economical method of obtaining mechanical power from steam primarily raised for heating purposes.

For regulating the output of a back pressure engine to suit the heating steam requirements of a mill it is essential to have a regulator which is at the same time highly sensitive and powerful. These conditions are admirably filled by the oil-operated pressure regulator shown in Fig. 2, which has been installed in a number of mills.

This regulator consists of a pressure transmitter and one or more servomotors. The apparatus is fed with pressure oil from the general lubricating system of the engine and is connected by oil pipes O (see Fig. 1). The pressure transmitter consists of a vessel connected by means of the pipe T to the heating main H in which the pressure is kept constant. The connecting pipe is intentionally so arranged that water can accumulate in it, so that while working only water and not steam obtains access to chamber 1. Above the water this chamber is filled with oil, the quantity of which can be so adjusted at 2 that the dividing level of the two liquids is visible at a convenient height in sight gauge 3. In this manner piston 4 is prevented from coming into contact with water or steam and therefore no rust can form on it. The piston rests through rod 5 against pilot valve 6, which is loaded by an adjustable spring 8.

A pressure increase in chamber 1 causes the piston and valve to rise until the tension of the spring 8 is again in equilibrium with the increased piston pressure. Each position of piston 4 and therefore also of pilot valve 6, corresponds to a certain oil pressure in 1, i.e., a certain steam

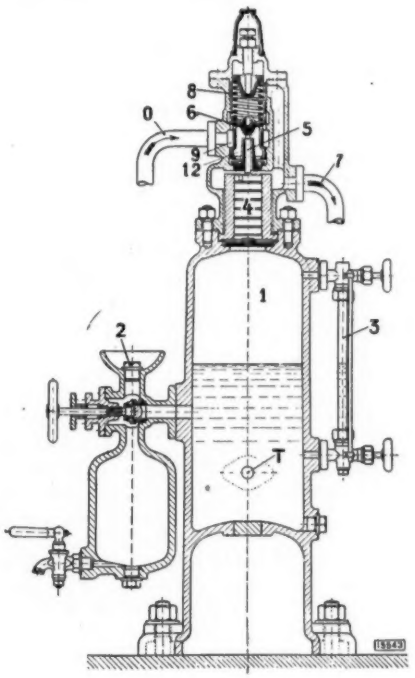


FIG. 2

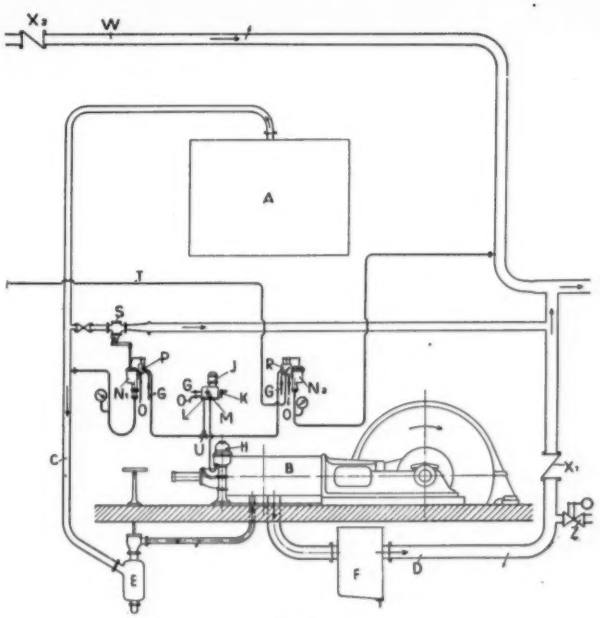


FIG. 3

A. Steam boiler. B. New steam engine. C. 440 lb. steam main. D. Exhaust pipe, steam at 7 lb. E. Steam trap. P. Oil-separator for exhaust. G. Pipes for oil under pressure. H. Governor. J. Electric motor for remote adjustment of speed (from the switchboard). K. Handwheel for speed adjustment by hand. L. Position of lever for load regulation to constant admission steam pressure. M. Position of lever for regulating to constant speed. N_1N_2. Pressure regulators. O. Oil outlets. P. Pressure relays. R. Double relays. S. Hydraulically operated blow-off valve. T. Pipe for regulating-oil of old engine. U. Three-way cock. W. Exhaust pipe of old engine. X_1X_2. Non-return valves. Z. Safety valve.

pressure in the main H. Similarly each position of pilot valve 6 results in a definite throttle effect, and therefore establishes a certain definite pressure of the incoming oil from the servomotor through the pipe O, the oil being drained away from the apparatus through pipe 7 into the oil collecting tank. The action of the pressure transmitter therefore is such that it transforms steam pressure prevailing in main H into a proportionately defined pressure of the regulating oil in the connecting pipe O of the servomotor.

A New Installation

A particularly interesting plant has just been installed in a large mill. This consists of a 350 kw back pressure engine which has several unusual features in connection with its regulation. The steam arrives at the engine from the superheater of the 515 lb. per sq. in. steam generator through a steam separator E (Fig. 3) at a pressure of about 440 to 470 lb. per sq. in. gauge and at a temperature of 662 deg. F., and expands in the engine down to the heating steam pressure of about 7 lb. per sq. in. gauge. Steam can also be led direct from the boiler to the heating mains through a bypass piping fitted with automatically operated throttle valve S.

The heating steam pressure is kept constant by means of a steam pressure regulator N_2, which operates on the speed governor H of the steam engine through control valve R; it regulates the load on the engine in accordance with the pressure in the heating steam system. A second control valve, operated from the same regulator N_2, acts through the pipe T on a remote speed control of an older steam engine working on the 176 lb. per. sq. in. system.

According to the original arrangements the same regulator controls the live-steam make-up valve S. All these members are combined in such a way that, if the pressure of the heating steam tends to fall, the regulator N_2 first of all increases the load on the new steam engine B. When

the maximum output of this steam engine has been reached, additional load is also put on the older engine working on the 176 lb. per sq. in. system, and if the load is still insufficient for maintaining the heat steam pressure, the live-steam make-up valve S comes into operation.

Since the case may occur where the steam raised in the boiler is not sufficient to supply the make-up steam required, another automatic live-steam make-up valve, not shown in the illustration, is provided by means of which steam may be led to the heating system from the 176 lb. per sq. in. system. In this way the heating steam pressure can be kept constant in all circumstances, and the steam engines are always working at full load before live steam is passed through one of the pressure reducing valves. This arrangement is important, since the power required in the mill is always more than the total power which can be generated in its own plant, so that, in addition to the electric energy generated from the steam, electric energy must also be obtained from other sources. But since the energy generated in the plant costs only a fraction of energy obtained from outside, the service is most economical when the maximum possible amount of mechanical power is being obtained from the heating steam.

If the pressure in the heating system tends to rise when the demand for heating steam is falling, regulation takes place in the contrary manner. First of all the pressure reducing valve through which steam passes from the 176 lb. per sq. in. system is closed, then the valve S, after which load is taken off the old steam engine, and finally, according to requirements, the load on the new engine B is reduced.

The regulation as described works accurately and without giving trouble, although experience made in the first months of service has shown that, in order to obtain a good steady boiler service, it is desirable to regulate the steam engine not according to the pressure of the exhaust steam, but according to the boiler pressure, i.e., always to regulate the load so that the boiler pressure remains constant at 515 lb. per sq. in. gauge. In order to regulate in this manner, a second steam pressure regulator N_1 has been added; it influences the speed governor H of the engine in accordance with the pressure in the steam main leading from the boiler to the engine, and at the same time operates the throttle valve S. The throttle valve only comes into operation when the engine is regulated to work at full load, although not all the steam generated can be utilized. In this case the surplus steam flows through the valve S into the heating system. The regulator N_1 therefore belongs to the boiler, since it keeps the pressure there automatically constant.

Other features worthy of mention are the hand-operated speed adjustment K, the remote control speed adjustment G, the three-way cock U and the regulating control lever L/M. With the help of this lever the automatic regulators can be put out of action, so that it is possible to adjust the speed as required by hand or from the switchboard by means of the remote speed adjustment G. It is very convenient when paralleling the generating set with the outside source of electric supply to be able to regulate the speed of the engine from the switchboard.

Lining of Digesters and Acid Tanks in the Scandinavian Sulphite Industry

In the Scandinavian sulphite pulp mills there are about 490 digesters of varying size in operation, most of them 150-200 cubic meters capacity. They are all lined with acid proof bricks, set with acid proof mortar. Lead sheet between the shell and the brick lining is not used any more, and the bricks are set directly on the shell with a layer of mortar of 10-15 mm. between.

Two qualities of acid proof mortars are generally being used, both litharge mortars. One quality is used for setting the bricks and the other for filling up the joints. The jointing mortar is coagulating more quickly, which is important, as it is often used when the digester is put out of operation only for a short time.

The digesters are lined either with a double brick layer, 20 plus 50 mm., or with a single layer, 50 mm. For single layer sometimes a thicker brick is used for the bottom cone, for instance 60 mm. The pulp engineers seem at present to prefer double layers, as this means a greater security of operation.

The durability of the digester linings is dependent on the method of operation and also on the quality of mortar used and the care devoted to the setting. The lifetime of the bottom lining is generally shorter than some of the other parts of the lining. Normally the lifetime of the bottom lining is 4 to 5 years.

Ordinary acid storage tanks are lined with a single layer of tiles, for instance 40 mm. thick, but hot acid accumulators with double layers in the same manner as digesters. For the hot acid accumulators originally a brick with coarse structure was used, characterized by a high resistance against thermal shocks. As the relief gas from the digesters was taken directly to the accumulators without cooling and under pressure, it proved, however, that this type of brick was not the most suitable one. The bricks were split by the precipitation of mineral salts in the pores of the material.

Höganäs-Billesholms Aktiebolag has for many years been studying carefully the question of lining hot acid accumulators in order to create the most suitable brick for this purpose. As it proved that by laboratory research work it was not possible to reach the solution of the problem, the company erected a tank of 50 cubic meters for testing new qualities under practical conditions. The tank is installed in a sulphite pulp mill and is operated as a hot acid accumulator, combined to the ordinary cooking system.

The tests are intended to continue for a first period of 5 years. They have already resulted in a new quality, that the company has recently marketed. This brick has given excellent results in hot acid accumulators, superior to any other quality used before. The new quality has a special structure giving an extremely high resistance to the penetration of the acid and at the same time resisting the thermal shocks occurring in hot acid accumulators.

Bantam Ball Bearing Orders Increase

The Bantam Ball Bearing Company is said to be enjoying a great increase in order since completion of its new plant addition in South Bend which more than doubles its capacity of a little over a year ago. A good part of this increased business has been as a result of very large orders in the steel field.

In discussing the outlook for business during the next few months, A. Harold Frauenthal, general manager of the Bantam Company stated: "August was the second largest month in the history of the company and September may be even larger. Demands for our bearings in the steel and other heavy industries are taxing even our increased capacity. From all indications this demand will increase during the next few months. Now that the automotive industry is again getting under way, the many new installations of needle bearings will be added to last year's large production. With this work, plus the heavy duty work, we expect to enjoy the largest business we have ever had."

United States Patents on Paper Making

Third Quarter, 1936

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The following list of patents has been compiled from the current issues of the Official Gaeztte of the United States Patent Office. Since, as a rule, only one claim is published in the Gazette, it is not claimed that the list is complete.

Copies of any of the following patents may be obtained from the Patent Office, Washington, D. C., by sending ten cents ($0.10) for each patent desired. At least the name of the patent, the number and the date of issue should be given. Personal checks and stamps are not accepted in payment for patents.

July, 7, 1936

2,046,382. Bleaching process and bleach. Wilhelm Hirschkind, assignor to Great Western Electro-Chemical Companay, San Francisevo, Calif. Filed April 7, 1932. 8 claims. (Cl. 8-2). A borate is used to buffer a hypochlorite bleach to maintain its alkalinity.

2,046,494. Heat insulating and fireproof materials. Robert Van Rolleghem, assignor to "Compagnie Internationale de Produits Ignifuges et Calorifuges (C. I. P. I. C.)," Neuilly-sur-Seine, France. Filed May 26, 1934. 12 claims. (Cl. 91-68). Method of treating an asbestos product, finally applying a surface coating of an alkaline silicate and graphite.

2,046,551. Process of bleaching chemical wood pulp. David B. Davies, Shelton, Wash. Filed Sept. 8, 1931. 28 claims. (Cl. 8-2). The pulp is chlorinated at low density and a relatively cold temperature, so that the activity of the chlorine is retarded.

2,046,614. Method of preventing slime growth in paper making processes. Pierre Drewson, assignor to The Hinde and Dauch Paper Company, Sandusky Ohio. Filed Dec. 4, 1935. 5 claims. (Cl. 92-21). Caustic alkali is added to the stock in excess of the amount required to neutralize the hardness of the water.

2,046,714. Color matcher. Earl D. Wilson and Carl C. Hein, assignors to Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. Filed July 19, 1934. 3 claims. (Cl. 88-14).

2,046,750. Pressure inversion process of making hard board products. William H. Mason and Charles D. Westphalen, assignors to Masonite Corporation, Laurel, Miss. Filed April 12, 1934. 17 claims. (Cl. 92-61). Applying an extra high initial pressure (400-500 lbs. per sq. in.), then completing the pressure at 100-125 lbs. per sq. in.

2,046,763. Paper product and method of making. Benjamin Asnes, assignor to Dennison Manufacturing Company, Farmingham, Mass. Filed Dec. 28, 1931. 2 claims. (Cl. 91-68). Tissue paper of high alphacellulose is impregnated with glue or gelatin, set with formaldehyde and softened with glycerin.

2,046,848. Composite wrapping material. Thomas M. Royal, assignor to Ramco, Inc., a corporation of Delaware. Filed May 19, 1934. 7 claims. (Cl. 229-87). A marginal section of paper and a central section of transparent material.

2,046,975. Paper container. William H. Shaw and John J. Moriarty, assignors to E. I. du Pont de Nemours and Co., Wilmington, Del. Filed May 9, 1934. 6 claims. (Cl. 91-68). Moisture-proof container; strong paper base and coating of uncured rubber, etc.

2,046,987. Low viscosity halogen containing rubber derivative compositions. Herbert A. Winklemann, assignor to Marbo Products Corporation, Chicago, Ill. Filed June 10, 1935. 6 claims. (Cl. 134-17). A halogen containing rubber derivative in toluene may be used for coating paper.

2,047,032. Process of correlating chemical recovery in pulp mills operating with different kinds of liquors. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed Sept. 28, 1934. 6 claims. (Cl. 23-48). Liquors from kraft and ammonium bisulphite cooks are mixed, heated to liberate ammonia and the residue is burned and causticized.

2,047,130. Process of decortication of fibrous plants. Albert T. Ratliff and Richard R. Guice, assignors to The Pine-Felt Corporation of Mississippi, Petal, Miss. Filed March 5, 1935. 1 claim. (Cl. 92-7). Pine needles, corn stalks, etc., are wilted by steam, treated with hot water and steam under pressure and the fiber disintegrated by releasing the pressure.

2,047,136. Fabrication of leather boards and thinner leather sheets. William T. Doyle, assignor to Sturtevant Mill Company, Boston, Mass. Filed Oct. 24, 1935. 4 claims. (Cl. 92-20). Waste leather is comminuted in a hammer mill, air-separated, mixed with water and formed on the Fourdrinir.

2,047,143. Casein solutions. Carl Iddings, assignor to The Muralo Company, Inc., a Corporation of New York. Filed Dec. 8, 1933. 25 claaims. (Cl. 134-20). Casein containing an ammonium soap of a glycerol-phthalate resin is suitable for use in sizing.

2,047,161. Shingle. Herbert Abraham, assignor to The Ruberoid Co., New York, N. Y. Filed April 14, 1934. 4 claims. (Cl. 108-9). T-shaped single.

July 14, 1936

R20,034. Fabrication of corrugated papers. Charles Q. Ives, assignor to Sherman Paper Products Corporation, Newton, Mass. Original No. 1,975,548, dated Oct. 2, 1934. Application for reissue Nov. 18, 1935. 6 claims. (Cl. 154-55). Criss-cross depressions are made in a single-faced corrugated paper by means of a creasing roll.

2,047,170. Treatment of fibrous material. Arne Johan Arthur Asplund, assignor to Aktiebolaget Defibrator, Stockholm, Sweden. Filed Feb. 21, 1934. 4 claims. (Cl. 92-21). Method of mechanically defibering substantially dry material at elevated temperatures in the presence of a sizing agent, such as wax.

2,047,217. Sizes, David M. McQueen and Warner J. Merrill, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed March 15, 1935. 34 claims. (Cl. 91-68). An emulsion containing a salt of deacetylated chitin.

2,047,218. Compositions comprising deacetylated chitin. Warner J. Merrill, assignor to E. I. du Pont de Nemours and Company, Wilmington, Delaware. Filed June 21, 1934. 21 claims. (Cl. 91-68). An at least partially deacetylated, substantially undegraded chitin and a member of the class consisting of cellulosic substances.

2,047,220. Chemical compositions and processes for mixing the same. Gordon D. Patterson and James H. Peterson, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed March 15, 1935. 20 claims. (Cl. 91-68). A coating composition containing a salt of a deacetylated chitin.

2,047,226. Chemical process and chemical compounds derived therefrom. George W. Rigby, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed March 15, 1935. 16 claims. (Cl. 154-2). Sheets of paper are treated with a 3 per cent aqueous solution of acetate of deacetylated chitin and the joined sheets treated with ammonia gas.

2,047,314. Lignocellulosic material. Henry Dreyfus, London, England. Filed Feb. 8, 1933. 9 claims. (Cl. 92-13). A dilute alkali and then a concentrated alkali are used, followed by chlorine bleaching.

2,047,372. Apparatus for welding ink and cellulose tissue. George Jalens, West New York, N. J. Filed Sept 15, 1933. 1 claim. (Cl. 34-48). Method of drying moisture-proof cellulose tissue.

2,047,422. Fourdrinier paper making machine. Bernard A. Malkin, assignor to Dominion Engineering Works Limited, Lachine, Quebec, Canada. Filed March 22, 1934. 13 claims. (Cl. 92-44). Means for supporting table roll section to facilitate wire changing.

2,047,488. Wood pulp making. Peter A. Paulson, Appleton, Wis. Filed May 21, 1934. 10 claims. (Cl. 92-11). Continuous process for sulphite pulp.

2,047,542. Drier felt for paper machines and the like. William A. Barrell, North Andover, Mass. Filed Feb. 13, 1933. 8 claims. (Cl. 139-410).

2,047,552. Paper folding mechanism. William Fairchild, assignor to A. P. W. Paper Co., Inc., Albany, N. Y. Filed Jan. 4, 1935. 4 claims. (Cl. 270-71).

2,047,584. Manufacture of composite slabs, blocks or tiles. Eric Russell Harrap, Chorlton-cum-Hardy, England. Filed May 11, 1935. 6 claims. (Cl. 154-33). Asbestos and a binding agent.

2,047,592. Consistency regulator. Oscar M. Nickerson, Millinocket, Maine. Filed Aug. 29, 1932. 1 claim. (Cl. 92-46). Actuated by a photoelectric cell, the source of light for which passes through the stock.

2,047,595. Mixing tank for fibrous material suspended in liquid. Johan Cristoffer Fredrik Carl Richter, Oslo, Norway. Filed Sept. 11, 1934. 13 claims. (Cl. 92-37). A tank with a circulation pump so that stock from different levels will have same consistency.

2,047,610. Drier felt for paper machines and the like. William A. Barrell, North Andover, Mass. Filed Sept. 21, 1933. 10 claims. (Cl. 139-410).

2,047,628. Apparatus for producing solutions. Gustaf Haglund, assignor to Patentaktiebolaget Grondal-Ramen, Stockholm, Sweden. Filed Oct. 20, 1933. 9 claims. (Cl. 261-21). Apparatus for absorption of sulphur dioxide by lime.

2,047,700. Decalcomania paper. John MacLaurin, Ware, Mass. Filed Sept. 5, 1931. 2 claims. (Cl. 154-2). A soluble alginate is used in the coating.

2,047,741. Siding element and process of making same. Stuart Parmelee Miller, assignor to The Barrett Company, New York, N. Y. Filed June 14, 1933. 7 claims. (Cl. 91-68). Method of coating a felt base with bituminous material and then surfacing the product with mineral grit, etc.

2,047,742. Siding element and process of making same. Stuart Parmelee Miller, assignor to The Barrett Company, New York, N. Y. Filed June 14, 1933. 11 claims. (Cl. 91-68).

2,047,808. Liquid pulp screen. Edward J. Trimbey, Glens Falls, N. Y. Filed Feb. 6, 1935. 2 claims. (Cl. 92-35). Rotary cylinder knotter.

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2,047,975. Paper and process for the manufacture of same. Leo Liberthson, assignor to L. Sonneborn Sons, Inc., New York, N. Y. Filed Oct. 29, 1932. 2 claims. (Cl. 91-68). An oil-soluble copper compound is used to prevent fungi growth in petroleum incorporated in the paper.

2,047,978. Decalcomania paper. John MacLaurin, Ware, Mass. Filed April 5, 1935. 8 claims. (Cl. 91-68). A water-soluble salt of alginic acid is used in one of the coatings.

2,048,045. Process and apparatus for forming tapered fibrous units. Floyd W. Adams, assignor to The Barrett Company, New York, N. Y. Filed Aug. 23, 1933. 21 claims. (Cl. 92-54). An inclined Fourdrinier is used, provided with a plurality of inclined bottomed stock boxes travelling with the wire.

2,048,069. Manufacture of envelopes and machine therefor. Vincent E. Heywood, assignor to United States Envelope Company, Springfield, Mass. Filed Sept. 14, 1931. 5 claims. (Cl. 93-61).

2,048,293. Manufacture of absorbent cloth-like paper. George A. Richter and Milton O. Schur, assignors to Brown Company, Berlin, N. H. Filed Oct. 20, 1932. 9 claims. (Cl. 92-40). Regenerated cellulose and glycerin are added to the paper.

2,048,301. System for making box blanks. John S. Stokes and Ernest G. Rider, assignors to Stokes and Smith Company, Philadelphia, Pa. Filed Feb. 4, 1933. 26 claims. (Cl. 93-45).

2,048,335. Device for rapidly making cross-sections of fibers. John I. Hardy, Washington, D. C. Filed June 7, 1935. 2 claims. (Cl. 88-40). Means for projecting fibers through fiber slot.

2,048,475. Friction padding material. Willard Jordan Slagle, assignor to Dewey and Almy Chemical Company, North Cambridge, Mass. Filed Oct. 10, 1930. 3 claims. (Cl. 154-43).

2,048,597. Prepared roofing. Walter H. Cady, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Jan. 2, 1930. 8 claims. (Cl. 108-7).

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2,048,684. Adjustable free running self aligning creaser or slitter. Aloysius James Carr, Carthage, Ind. Filed June 7, 1935. 3 claims. (Cl. 164-60). Paper board machine.

2,048,693. Method of producing boxes or carton blanks bearing printed matter and resulting product. William F. Grupe, Lyndhurst, N. J. Filed May 14, 1934. 20 claims. (Cl. 93-36).

2,048,719. Art of fiber liberation and infibrilized products thereof. Arley C. Whitford, assignor to J. Weston Allen and Everett E. Kent, both of Newton, Mass., and Henry W. Packer, Wellesley, Mass. Filed June 29, 1932. 7 claims. (Cl. 92-15). Flax, hemp, etc., are treated with a weak "semi-chemical" liquor, i. e., sodium carbonate-sodium sulphite—containing a neutral soap, by boiling in an open vessel.

2,048,754. Web processing machine. Charles P. Putnam, Lock Haven, Pa. Filed Aug. 31, 1932. 3 claims. (Cl. 271-2, 3). Method of driving processing rolls.

2,048,775. Purification of cotton linters. Elmer K. Bolton, assignor to E. I. du Pont de Nemours Company, Wilmington, Del. Filed Oct. 1, 1934. 1 claim. (Cl. 92-13). Digesting with dilute caustic soda containing a wetting agent, such as dodecyl or lauryl alcohol.

2,048,817. Manufacture of heat insulating tubes. Frederich Rosengarth, assignor to Naamlooze Vennootschap Maatschappij tot Beheer en Exploitatie van Octrooien, The Hague, Nether-

lands. Filed April 27, 1933. 7 claims. (Cl. 154-27).

2,048,841. Stereotype blanket. John J. Covne, Forest Hills, N. Y. Filed Oct. 8, 1934. 5 claims. (Cl. 154-54.5).

2,048,895. Composite commodity wrapper and method of constructing same. Shy Rosen, Flushing, N. Y. Filed June 4, 1934. 8 claims. (Cl. 154-42).

2,049,050. Evacuation of condensate. Hervey G. Cram, Boston, Mass. Filed June 13, 1934. 12 claims. (Cl. 34-48). An eduction pipe for a steam-heated drier cylinder.

2,049,135. Method of and means for severing and feeding a web of flexible material. Joseph Peyser, Mount Vernon, N. Y. Filed March 28, 1935. 8 claims. (Cl. 164-17).

2,049,162. Apparatus for testing the viscosity of liquids. Clifford S. Healy, Chicago, Ill. Filed Aug. 24, 1934. 2 claims. (Cl. 265-11).

2,049,187. Apparatus for making wire fabric seams. Paul J. Abendroth and Otto A. Abendroth, Appleton, and Walter Wessenberg, Menasha, Wis. Filed Oct. 1, 1934. 3 claims. (Cl. 140-3).

2,049,370. Electrical insulation material. Frank J. Groten, assignor to General Electric Company, Schenectady, N. Y. Filed June 20, 1934. 3 claims. (Cl. 91-70). An asbestos board impregnated with wax.

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2,049,417. Rotary cup machine. Cesare Barbieri, assignor to Vortex Cup Company, Chicago, Ill. Filed Sept. 10, 1931. 23 claims. (Cl. 93-36).

2,049,418. Cup machine. Cesare Barbieri, assignor to Vortex Cup Company, Chicago, Ill. Filed May 25, 1932. 93 claims. (Cl. 93-39.3).

2,049,419. Process of making containers. Cesare Barbieri, assignor to Vortex Cup Company, Chicago, Ill. Filed April 26, 1934. 25 claims. (Cl. 93-39).

2,049,469. Manufacture of saturated fibrous products. Izador J. Novak, assignor to Raybestos-Manhattan, Inc., Bridgeport, Conn. Filed Aug. 16, 1933. 8 claims. (Cl. 92.40). Wet web is passed through a saturating bath while supported on a felt and couched or pressed as it emerges from the bath.

2,049,483. Machine for manufacture of window envelopes and like containers. Alfred Winkler and Max Dünnebier, Neuwied-on-the-Rhine, Germany. Filed Sept. 18, 1933. 9 claims. (Cl. 93-61).

2,049,503. Paraffining machine. Lydia B. Koch, New York, N. Y. Filed Nov. 28, 1933. 7 claims. (Cl. 91-49).

2,049,514. Adhesive applying mechanism for tubing machines. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Feb. 28, 1934. 4 claims. (Cl. 91-12).

2,049,515. Cut-off and discharge mechanism for tubing machines, bag making machines and the like. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Feb. 28, 1934. 8 claims. (Cl. 164-61).

2,049,535. Method and apparatus for making granular coated webs. Raymond C. Benner, Henry P. Kirchner and Romie L. Melton, assignors to The Carborundum Company, Niagara Falls, N. Y. Filed Dec. 1, 1932. 7 claims. (Cl. 91-18).

2,049,567. Manufacture of paper pulp. Louis Leonard Larson and George Lewis Schwartz, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed June 5, 1934. 5 claims. (Cl. 92-9). Increasing penetration of cooking liquor by addition of wetting agents, such as organic sulphonates and sulphates.

2,049,676. Process of treating bleached pulp. George H. Tomlinson, Montreal, Quebec, Canada. Filed Feb. 13, 1934. 10 claims. (Cl. 8-2). Final color of an alkaline bleached pulp is improved by adding acid, preferably in the presence of an anti-chlor, washing and treating with hypochlorite.

2,049,728. Machine for making open window envelopes. Eugene B. Berkowitz, Kansas City, Mo. Filed Aug. 13, 1934. 11 claims. (Cl. 271-37).

2,049,864. Paper manufacture. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Oct. 29, 1932. 20 claims. (Cl. 92-21). Sizing alkaline filled paper with rosin emulsified with casein.

2,049,892. Apparatus for making artificial leather or the like. John B. Catlin and Rudolf A. Moravek, assignors to Paper Patents Company, Neenah, Wis. Filed Oct. 20, 1932. 4 claims. (Cl. 154-37).

2,049,952. Machine and method for manufacturing containers. Frederick C. Fisk, Williamsville, N. Y. Filed Aupg. 9, 1933. 12 claims. (Cl. 93-39).

2,049,978. Manufacture of bituminized felts. Milton O. Schur and Walter L. Hearn, assignors to Brown Company, Berlin, N. H. Filed Jan. 4, 1933. 7 claims. (Cl. 91-70). The felt is humidified (moisture content about 5 per cent) either before or after impregnating with bitumen.

2,050,019. Method of manufacturing containers. Walter L. Rutkowski, assignor to R. C. Can Company, St. Louis, Mo. Filed May 4, 1935. 6 claims. (Cl. 93-36). Providing containers with windows.

2,050,061. Fiber utensil. William M. McCaskell, Philadelphia, Pa. Filed July 25, 1934. 6 claims. (Cd. 53-6). Pie plate of several plies, cover portions of thin paper pulp, opaque, dense and white in color.

2,050,206. Molded pulp article. Merle P. Chaplin, assignor to The Canal National Bank of Portland, Portland, Me. Filed Dec. 21, 1934. 5 claims. (Cl. 229-2.5).

August 11, 1936

R20,065. Preparation of fibrous material. Elis Olsson, West Point, Va. Original No. 2,006,559, dated July 2, 1935. Filed April 10, 1936. 5 claims. (Cl. 92-6). Combination of digester and pulp receiving chamber containing a grinder.

2,050,247. Laminated insulating block and method of fabricating the same. Lester E. Cover, assignor to Armstrong-Newport Company, Pensacola, Fla. Filed July 1, 1933. 15 claims. (Cl. 154-28).

2,050,248. Strip material for container closures. Jay Bernard Eisen, assignor to Ferdinand Gutmann and Co., New York, N. Y. Filed Aug. 24, 1934. 1 claim. (Cl 154-45.5). Paper and metal foil.

2,050,262. Process of manufacturing paper and paper board. Levis Miller Booth, Plainfield, N. J. Filed July 20, 1932. 12 claims. (Cl 92-21). Alkaline material added to stock just before forming wire to react with free carbon dioxide.

2,050,315. Photoelectric paper cutting control. Finn H. Gulliksen, assignor to Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. Filed Feb. 1, 1932. 1 claim. (Cl. 164-68). Application to tube making machine.

2,050,316. Cutter register control. Finn H. Gulliksen, assignor to Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa. Filed March 16, 1934. 43 claims. (Cl 164-68).

2,050,350. Paper feeding and cutting apparatus. Abe H. Markowitz, Los Angeles, Calif. Filed Oct. 8, 1934. 27 claims. (Cl. 164-68).

2,050,382. Combining of three or more layers of material together by means of a liquid adhesive substance. Thomas Rowbotham, Bramhall, and William Shaw, Stockport, England. Filed Jan. 10, 1935. 4 claims. (Cl. 154-37).

2,050,394. Paper roll and method of forming same. Louis A. Straubel, Green Bay, Wis. Filed Oct. 18, 1935. 19 claims. (Cl. 164-17). Forming a blank sheet into a plurality of individual rolls.

2,050,400. Method for recovery of heat and chemicals from waste products. Charles Linden Wagner, assignor to The Babcock and Wilcox Company, New York, N. Y. Filed Feb. 3, 1930. 9 claims. (Cl. 23-48). Method of evaporating and burning waste liquors.

2,050,483. Method of drying and impregnating felt. Harold D. Brown, Los Angeles, Calif. Filed Nov. 5, 1934. 2 claims. (Cl. 91-70). Sheet coated with absorbent is dried by the saturating bath.

2,050,486. Apparatus for testing the smoothness of paper. Myrl N. Davis, and Homer E. Malmstrom, assignors to Paper Patents Company, Neenah, Wisconsin. Filed Aug. 1, 1934. 3 claims. (Cl. 88-14). The intensity of the reflected beam of light emerging from a prism in contact with the paper is measured.

2,050,509. Mechanism for unwinding mill rolls. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed March 20, 1934. 9 claims. (Cl. 271-2.3).

2,050,749. Pulp grinder temperature control system. Clayton D. De Mers, assignor to Taylor Instrument Companies, Rochester, N. Y. Filed July 25, 1933. 6 claims. (Cl. 83-75). Cooling water is applied to the stone in proportion to the increase in temperature and inversely proportional to the decreasing sharpness of the stone.

2,050,794. Sealing paper rolls. Ferdinand W. Humphner, assignor to Mid-States Gummed Paper Co., Chicago, Ill. Filed Nov. 9, 1932. 2 claims. (Cl. 164-65). Means of slitting gummed paper and for forming sealing spots on the gummed surface of each of the rolls simultaneously.

2,050,795. Decalcomania paper and transfer. Ferdinand W. Humphner, assignor to Mid-States Gummed Paper Co., Chicago, Ill. Filed May 4, 1935. 8 claims. (Cl. 41-33).

2,050,996. Dry size. John F. Fredriksson, assignor to American Cyanamid and Chemical Corporation, New York, N. Y. Filed Oct. 30, 1931. 17 claims. (Cl. 134-21). Reaction of caustic soda, rosin and water at room temperature so as to produce a dry size.

2,050,997. Method of making a dry rosin size composition. Thomas W. Asbury, Richard A. Asbury and John F. Fredriksson, assignors to American Cyanamid and Chemical Corporation, New York, N. Y. Filed Aug. 2, 1934. 7 claims. (Cl. 134-21). Cooled powdered rosin and cooled caustic soda are mixed at 65° F., the amount of water being insufficient to form a liquid product.

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2,051,025. Method of making ply board. Jordan V. Bauer, assignor to Stein, Hall Manufacturing Company, Chicago, Ill. Filed June 17, 1936. 13 claims. (Cl. 154-33). Use of ungelatinized starch as an adhesive, the final assembly being heating to develop the adhesive properties.

2,051,047. Method of treating fibrous material. John M. Hothersall, assignor to American Can Company, New York, N. Y. Filed June 23, 1933. 2 claims. (Cl. 91-68). Container with translucent, liquid proof windows.

2,051,168. Web and bituminized article made therefrom and process of making same. Harold W. Greider and George Arthur Fasold, assignors to The Philip Carey Manufacturing Company, Lockland, Cincinnati, Ohio. Filed May 25, 1933. 15 claims. (Cl. 92-3). The web is composed of 90% alpha pulp and 10% kraft and cotton waste.

2,051,170. Wrapping material for an edible product. John Helfrich, assignor to Newark Paraffine and Parchment Paper Co., Newark, N. J. Filed Nov. 29, 1933. 4 claims. (Cl. 99-171). The material is coated on its inner face with an amine.

2,051,202. Apparatus for controlling the processing of pulp stocks. Clayton D. De Mers, assignor to Taylor Instrument Companies, Rochester, N. Y. Filed March 2, 1934. 9 claims. (Cl. 92-24). Beater control.

2,051,220. Treatment of cellulose to render it suitable for esterification. Carl J. Malm and Charles Fletcher, assignors to Eastman Kodak Company, Rochester, N. Y. Filed Sept. 29, 1933. 3 claims. (Cl. 260-101). The cellulose is treated with an aliphatic polyhydroxic alcohol and dried at a non-scorching temperature.

2,051,296. Corrugator. Walter J. Goettsch, assignor to Samuel M. Langston Co., Camden, N. J. Filed Feb. 24, 1934. 7 claims. (Cl. 154-31). Means for applying adhesive strips to the liner board.

2,051,308. Box making machine. John W. McCarthy, assignor to W. C. Ritchie and Company, Chicago, Ill. Filed Oct. 17, 1934. 15 claims. (Cl. 93-39).

2,051,319. Corrugator. Karl Sieg, assignor to Samuel M. Langston Co., Camden, N. J. Filed April 16, 1935. 15 claims. (Cl. 154-31). Means for applying adhesive strips to the sheet.

2,051,403. Paper coating. Sylvester Boyer and Le Clare F. Parmenter, assignors to S. D. Warren Company, Boston, Mass. Filed July 16, 1930. 16 claims. (Cl. 91-53). Method of removing excess coating from sheet.

2,051,409. Dispersion of nonsaponifiable resin and process of making same. John A. Kenney, assignor to The Barrett Company, New York, N. Y. Filed Jan. 20, 1934. 3 claims. (Cl. 132-26). Method of dispersing a resin of the coumarone indene type, adapted for sizing and waterproofing paper.

2,051,410. Process of making a dispersion of a hard resin of the coumarone indene type. John A. Kenney, assignor to The Barrett Company, New York, N. Y. Filed Jan. 20, 1934. 2 claims. (Cl. 134-26). Use of a solution of alkali silicate.

2,051,434. Accumulator system for calenders. John J. Cavagnaro, Ridgewood, N. J. Filed June 18, 1934. 4 claims. (Cl. 92-71). Method for controlling the flow of liquid to calender rolls.

2,051,452. Process and apparatus for the manufacture of plaster-board. Edmonds Frank Mactaggart, London, and Oliver Margetson, Lancashire, England. Filed Oct. 17, 1935. 21 claims. (Cl. 154-2).

2,051,453. Apparatus for use in cutting sheet material into sections of predetermined length. Edmonds Frank Mactaggart, London, and Oliver Margetson, Gateacre, England. Filed Jan. 15, 1936. 2 claims. (Cl. 164-53).

2,051,464. Method of testing coated paper. Donald B. Bradner and William J. Montgomery, assignors to The Champion Paper and Fibre Company, Hamilton, Ohio. Filed Jan. 28, 1928. 20 claims. (Cl. 73-51). Adhesive tape is applied to the paper and the force necessary to pull the tape from the paper is measured.

2,051,510. Mechanism for the manufacture of envelopes with pasted-in-windows. Alfred Winkler and Max Dünnebier, Neuwied, Germany. Filed Nov. 25, 1930. 9 claims. (Cl. 93-61).

2,051,674. Paper twisting machine. Leslie F. Barnum, Detroit, Mich. Filed May 31, 1934. 4 claims. (Cl 117-15).

August 25, 1936

2,051,813. Machine for coating materials. Leo Bellamy, Newton, Mass. Filed March 28, 1934. 3 claims. (Cl. 91-45). Preparation of matrix sheets.

2,051,826. Method of and apparatus for sensitizing paper. Schuyler B. Davenport, Bound Brook, and Alfred Savio, Dunellen, N. J. Filed March 3, 1934. 4 claims. (Cl. 91-10). Sensitizing rotagravure carbon tissue.

2,051,922. Forming and filling of spirally wound tubes. Clarence W. Vogt, assignor to Vogt Processes, Incorporated, Greenwich, Conn. Filed July 18, 1934. 17 claims. (Cl. 93-3).

2,052,170. Sizing composition and process of making same. Max Engelmann, assignor to Bayer-Semesan Companay, New York, N. Y. Filed April 13, 1931. 10 claims. (Cl. 134-21). Dry rosin and alkali are ground to a powder; suitable for sizing paper.

2,052,197. Staggered riveted jordan lining. Harold D. Stuck and Philip A. De Nault, assignors to John W. Bolton and Sons, Inc., Lawrence, Mass. Filed June 6, 1934. 10 claims. (Cl. 92-27). Knives locked together by rivets staggered in overlapping relation.

2,052,291. Manufacture of stencil sheet. Bruno Hagg, assignor to firm: Grief-Werke vorm. Deutsche Burobedarfs-Gesellschaft Bruer und Co., Goslar-on-the-Harz, Germany. Filed Oct. 24, 1933. 1 claim. (Cl. 41-38.6). Coating composition con-

taining gelatin, Turkey red oil, oleic alcohol, chlorinated naphthalene and glyceryl monooleate.

2,052,494. Apparatus for forming paper tubing. James M. Smith, assignor to The Kennedy Car Liner and Bag Co., Shelbyville, Ind. Filed Dec. 9, 1935. 3 claims. (Cl. 93-82).

2,052,529. Apparatus for making cushion-edged sanitary napkins. Charles A. Fourness and Charles J. Greiner, assignors to International Cellucotton Products Company, Chicago, Ill. Filed Feb. 17, 1934. 9 claims. (Cl. 154-29).

2,052,541. Core for paper rolls. Frederick W. Roberts and George D. Illig, assignors to Niagara County National Bank and Trust Company, Lockport, N. Y. Filed Dec. 12, 1933. 13 claims. (Cl. 242-68).

September 1, 1936

2,052,746. Paper machine and method of making paper. Harold O. Bing, assignor to Beloit Iron Works, Beloit, Wis. Filed Oct. 29, 1931. 12 claims. (Cl. 92-30). In a cylinder type of paper machine, a combination of extractor rolls, suction rolls and heavy duty press rolls.

2,053,030. Apparatus for severing sheets from continuous webs. Charles Thomas Hall, assignor to Molins Machine Company, Limited, London, England. Filed June 28, 1935. 3 claims. (Cl. 164-68).

2,053,099. Method of producing bituminous dispersions. Jack Miscall, assignor to The Patent and Licensing Corporation, New York, N. Y. Filed July 26, 1932. 8 claims. (Cl. 134-1). Asphalt, water and dispersing agent are passed through a colloid mill.

2,053,153. Method and machine for forming corrugations in tubular barrel bodies of containers. Leon E. La Bombard and Guenther Brinkmann, assignors to Oswego Falls Corporation, Fulton, N. Y. Filed Jan. 16, 1934. 10 claims. (Cl. 93-80).

2,053,223. Mechanism for conditioning paper. Charles A. Meisel, assignor to Meisel Press Manufacturing Corporation, Boston, Mass. Filed May 29, 1934. 12 claims. (Cl. 91-18). Series of radially disposed blades, guide bars alternating therewith and means for adjusting guide bars in and out to bend more or less over said blades a web trained thereabout.

September 8, 1936

2,053,263. Process and apparatus for making bags. Alfred C. Coty and Thomas Earl Coty, Watertown, N. Y. Filed Oct. 24, 1935. 22 claims. (Cl. 93-14).

2,053,299. Method of forming paper containers. Roland K. Reed, assignor to Frank C. B. Page, New York, N. Y. Filed July 27, 1935. 5 claims. (Cl. 93-2).

2,053,505. Magazine grinder. Charles Alexander Waterous, Brantford, Ontario, Canada. Filed June 29, 1933. 5 claims. (Cl. 83-75). In a magazine grinder a vertical magazine designed to contact and positively retain certain logs and those thereabove against movement.

2,053,601. Method and apparatus for coating paper. Orme E. Cheatham, assignor to International Paper Company, New York, N. Y. Filed Jan. 29, 1935. 13 claims. (Cl. 92-38). Coating rolls.

2,053,723. Apparatus for treating shingles and shingle elements. Lester Kirschbraun, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed May 26, 1932. 3 claims. (Cl. 91-29). Coating roll and tank.

2,053,730. Glueing machine. Julius M. Minkow, assignor to Robert Minkow, New York, N. Y. Filed Nov. 22, 1934. 4 claims. (Cl. 91-51).

2,053,786. Method of forming paper rolls. Louis A. Straubel, Green Bay, Wis. Filed Nov. 14, 1934. 6 claims. (Cl. 164-17). Method of forming a plurality of rolls from a single blank sheet.

2,053,949. Molded pulp article. Richard L. Emery, assignor to The Canal National Bank of Portland, Portland, Maine. Filed April 18, 1933. 3 claims. (Cl. 229-2.5).

September 15, 1936

2,054,112. Sheet or film forming, or coating composition and a method of preparing the same. Allen Abrams and Charley L. Wagner, assignors to Marathon Paper Mills Company, Rothschild, Wis. Filed Oct. 16, 1933. 22 claims. (Cl. 106-23). 70 to 94% of paraffin wax, melting 120-140° F. and 6 to 30% of pale crepe rubber, compounded to form moistureproof, waterproof, non-tacky, elastic and flexible films.

2,054,113. Coated sheet material. Allen Abrams and Charley L. Wagner, assignors to Marathon Paper Mills Company, Rothschild, Wis. Filed Oct. 16, 1933. 10 claims. (Cl. 91-68). Paper coated with above paraffin-rubber mixture.

2,054,114. Method of forming flexible self-sustaining sheet material. Allen Abrams and Charley L. Wagner, assignors to Marathon Paper Mills Company, Rothschild, Wis. Filed Sept. 16, 1935. 8 claims. (Cl. 18-57). Wax, asphalt and a rubber-like substance.

2,054,115. Composition for coating, laminating and film forming. Allen Abrams, Charley L. Wagner and George W. Forcey, assignors to Marathon Paper Mills Company, Rothschild, Wis. Filed Sept. 16, 1935. 18 claims. (Cl. 154-50). Wax-rubber material.

2,054,116. Laminated sheet material. Allen Abrams, Charley L. Wagner and George W. Forcey, assignors to Marathon Paper Mills Company, Rothschild, Wis. Filed Sept. 16, 1935. 18 claims. (Cl. 154-50). Wax-rubber material.

2,054,214. Process and apparatus for making paper. John Buss, assignor to Provincial Paper Limited, Toronto, Ontario, Canada. Filed April 26, 1934. 11 claims. (Cl. 92-38). Means for stretching the paper web transversely, while in the moist condition as it passes over one of the rolls.

2,054,297. Web cutting mechanism for bag machines. George W. Poppe, assignor to Equitable Paper Bag Co. Inc., Brooklyn, N. Y. Filed Sept. 10, 1934. 12 claims. (Cl. 93-20).

2,054,298. Process of making paper receptacles. George W. Poppe, assignor to Equitable Paper Bag Co. Inc., Brooklyn, N. Y. Filed April 29, 1935, 2 claims. (Cl. 93-35).

2,054,301. Production of pulverulent cellulose. George A. Richter, assignor to Brown Company, Berlin, N. H. Filed April 17, 1935. 11 claims. (Cl. 92-1). Cellulose is mechanically reduced to fine particles, the fine fraction removed and dewatered, and the particles mechanically cleaved apart.

2,054,391. Multiple cylinder web drier. Ernst Schmidt, Unter-Polaun, Czechoslovakia. Filed July 25, 1935. 7 claims. (Cl. 34-48). Feltless drying cylinder for paper.

2,054, 406. Universal bag machine. Ross C. Betts, assignor to The Dobeckmun Co., Cleveland, Ohio. Filed Feb. 20, 1933. 15 claims. (Cl. 93-8).

2,054,444. Process for the production of resin impregnated cellulosic material and the products obtainable thereby. Peter Pinten, assignor to Dynamit-Actiengesellschaft vormals Alfred Nobel und Co., Troisdorf, near Cologne, Germanay. Filed Nov. 24, 1933. 6 claims. (Cl. 154-2). Sheets of cellulosic material are impregnated with a phenol-aldehyde condensation product having a solubility for water of at least 18%.

2,054,486. Manufacture of bags, packets, envelopes and the like. Tom Sargent and Gordon William French, assignors to Strachan and Henshaw, Limited, Bristol, England. Filed Jan. 24, 1933. 12 claims. (Cl. 93-8).

2,054,530. Means for aligning calender rolls. Harrison R. Williams, New York, N. Y. Filed April 1, 1930. 7 claims. (Cl. 33-182).

2,054,630. Method and apparatus for manufacturing paper. Ross C. Hurrey, assignor to International Paper Company, New York, N. Y. Filed May 5, 1934. 14 claims. (Cl. 92-44). Method of applying mordant as a high velocity jet to furnish emerging from the slice of a fourdrinier machine.

2,054,727. Process of making paper pulp. Harold Lundin and William H.Bitner, Springfield, Ohio. Filed Feb. 8, 1935. 17 claims. (Cl. 92-9). Process of converting sodium sulphide into sodium hydroxide.

2,054,779. Purification of bast fibers. George R. Bencraft, assignor to Meigs, Bassett and Slaughter, Inc., Philadelphia, Pa. Filed Sept. 24, 1934. 5 claims. (Cl. 92-12). The fibers are boiled with sodium sulphite and then with soap solution.

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2,054,832. Method of making bags. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Sept. 6, 1933. 3 claims. (Cl. 93-95).

2,054,833. Apparatus for making bags. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Nov. 20, 1934. 13 claims. (Cl. 93-13).

2,054,854. Manufacture of cellulose. Henry Dreyfus, London, England. Filed Aug. 22, 1934. 8 claims. (Cl. 92-13). Chemical wood pulp is treated with 0.5 to 3% alkali solution at 100° C., and then with 10-20% alkali at a temperature below 35° C.

2,054,867. Assembled board. Ernst Rudin and Heinrich Kollbrunner, Rapperswil, Switzerland. Filed March 31, 1933. 3 claims. (Cl. 154-55). Method of binding a flat sheet to a corrugated board.

2,054,870. Impregnating material for shoe linings. Willy Stelkens, assignor to C. F. Boehringer und Sohne, G. m. b. H., Mannheim-Waldhof, Germany. Filed Feb. 11, 1933. 10 claims. (Cl. 154-43).

2,054,874. Apparatus for use for measuring thickness of materials in sheet form and recording the thickness thereon. Evan George Wilson, Blundellsands, near Liverpool, England. Filed Aug. 30, 1934. 6 claims. (Cl. 101-42).

2,054,939. Method of fabricating alloy lined pressure vessels. Louis J. Larsen, assignor to A. O. Smith Corporation, Milwaukee, Wis. Filed May 25, 1936. 3 claims. (Cl. 219-10).

2,054,968. Flat screen. Clarence L. Durkee, Wausau, Wis. Filed Aug. 4, 1934. 4 claims. (Cl. 92-32).

2,055,030. Method of making stepped end bags. Edgar Hoppe, assignor to St. Regis Paper Company, New York, N. Y. Filed Sept. 21, 1934. 3 claims. (Cl. 93-35).

2,055,108. Log barker. Albert Hokonson,Coghlan, British Columbia, Canada. Filed June 18, 1934. 1 claim. (Cl. 15-183). Compound rotary rossing brush.

2,055,142. Paper making machinery. Joseph E. Bond, Middletown, Ohio. Filed Nov. 9, 1933. 11 claims. (Cl. 92-20). Method of breaking pulp of consistency as high as 10% or more.

2,055,143. Paper making machinery. Joseph E. Bond, Middletown, Ohio. Filed Nov. 9, 1933. 6 claims. (Cl. 92-20). Beater for treatment of paper pulp of high consistency.

2,055,450. Waterproof fabric and production thereof. Howard L. Bender and Frank I. Bennett, assignors to Johnson and Johnson, New Brunswick, N. J. Filed Sept. 12, 1931. 5 claims. (Cl. 91-68). The reaction product of an oil soluble phenol-oil-formaldehyde resinous complex and a substance adapted to render it into a plastic rubber-like mass.

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2,055,471. Laminated material. George T. Balfe, assignor to Detroit Gasket and Mfg. Co., Detroit, Mich. Filed Dec. 23, 1932. 4 claims. (Cl. 154-45.5).

2,055,635. Artificial leather manufacture. Milton O. Schur, assignor to Brown Company, Berlin, N. H., Filed Feb. 18, 1931. 9 claims. (Cl. 01-68). Rubber-impregnated base with a skin of rubber latex and viscose.

2,055,692. Paper making machine. Richard T. Lang, assignor to American Voith Contact Co., Inc., New York, N. Y. Filed Dec. 22, 1933. 26 claims. (Cl. 92-45). A shake device movably arranged alongside the shake rails.

2,055,738. Method of cutting roofing or like sheets. Emmett E. Venrick, assignor to American Asphalt Roof Corporation, Kansas City, Mo. Filed April 20, 1933. 2 claims. (Cl. 91-68).

2,055,799. Manufacture of sized paper. Charles R. Outterson, assignor to Bennett, Incorporated, East Cambridge, Mass. Filed Dec. 30, 1933. 3 claims. (Cl. 92-21). Stock rosin soap is added in amount sufficient to peptize the water component of the stock, then a rosin-soap-stabilized aqueous dispersion of unsaponified waterproofing material is added.

2,055,827. Process for bleaching, refining and cottonizing raw cellulose. Francesco Carlo and Firtunato Palazzo, Florence, Italy. Filed May 4, 1934. 5 claims. (Cl. 92-9). Method of treating cellulosic material with chlorine water and then with an alkaline sulphitic lye.

2,055,877. Method of making insulating material and apparatus therefor. John F. Palmer, St. Joseph, Mich. Filed March 2, 1935. 18 claims. (Cl. 154-28). Two sheets of paper coated with rubber, one of which is corrugated, are united.

2,055,956. Pulp hydrator. Harold Donald Wells, Glens Falls, N. Y. Filed Jan. 17, 1933. 5 claims. (Cl. 92-20).

2,055,984. Paper folding machinery. Frank Pepper, assignor to S and S Corrugated Paper Machinery Company, Brooklyn, N. Y. Filed Nov. 22, 1934. 9 claims. (Cl. 93-49).

2,056,092. Method of finishing paper boxes. Clarence Lloyd Claff, Randolph, Mass. Filed Nov. 22, 1935. 1 claim. (Cl. 93-36).

2,056,093. Method of making paper boxes. Clarence Lloyd Claff, Randolph, Mass. Filed Nov. 26, 1935. 7 claims. Cl. 93-36).

2,056,094. Method of making paper boxes. Clarence Lloyd Claff, Randolph, Mass. Filed Nov. 27, 1935. 2 claims. (Cl. 93-36).

2,056,114. Method of finishing fibrous products. Walther Schrauth, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Nov. 30, 1934. 8 claims. (Cl. 91-68). Esters for treating fibrous materials.

Packaging, Packing and Shipping

The American Management Association announces a conference on "Office Management Problems of These Recovery Days," to be held at the Commodore, New York, October 21-22. This is the week of the National Business Show.

The Association also announces its most recent publication, *Packaging, Packing, and Shipping.* This is a 250-page volume which embodies the results of the packaging conferences of recent years. This subject is of vital interest to many paper manufacturers. The edition is limited to 1,500 copies and the price is $7.50 each.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Miscellaneous Digestion Processes

Cyclic Process of Treating Alkaline Pulps. George A. Richter assignor to Brown Co. U. S. pat. 2,041,666 (May 19, 1936).—Thoroughly cooked pulp is treated with a small quantity of oxidizing or chlorinating agent (such as chlorine solution) and then for from 10 mins. to 6 hrs. with a relatively concentrated solution of caustic soda or sodium sulphide, and is finally bleached.—A.P.-C.

Separation of the Individual Fibers in Fibrous Material. Olaf Kristoffersen. U. S. pat. 2,039,807 (May 5, 1936).—Raw fibrous material is disintegrated between stationary and revolving members by means of projections or ribs passing between one another, the projections being constructed so that material between them is partly crushed and partly pulverized. The projections on the periphery of the rotating drum are shaped so that the front ends easily enter between the fixed projections on the inside wall of the surrounding casing, but are broadened at their rear ends so that they slide on the co-acting surfaces of the stationary projections. The rear ends of the drum projections are resiliently constructed, most simply by longitudinally slotting their ends.—A.P.-C.

Paper Stock Preparation. Everett K. Mansfield. U. S. pat. 2,038,374 (April 21, 1936).—Partially disintegrated and thoroughly saturated stock is acted on by striking, while unsupported or yieldably supported in water within an enclosed casing, by means of rapidly moving, loosely mounted swinging arms or heads. A series of such devices may be connected in series, each having a screen through which the stock is discharged from the casing when it has been sufficiently defiberized and hydrated.—A.P.-C.

Process and device in the cooking of pulp, for steaming the wood before putting the chips in the digester. B. Nyquist, Dynas. Swed. pat, 83,667 (Jan. 25, 1933).—The steaming is done by the steam from a digestor just previous to being blown.—j.f.o.

Process in the cooking of pulp according to the reversing flow method. E. Morterud, Oslo. Nor. pat. 55,448 (May 20, 1933).—A certain quantity of cooking liquor is removed from the digestor and put in another digestor or container. This liquor passes through a preheater.—j.f.o.

Method and Apparatus for Cooking Pulp. Frederick W. Adams and George S. Witham, Jr. U. S. pat. 2,038,780 (April 28, 1936).—The acid in the storage tank is heated to approximately cooking temperature by injection of low-pressure steam (about 20 lb. per sq. in.), the injector being located at the bottom and near one side of the tank so as to produce circulation therein.—A.P.-C.

Digesting Process and Apparatus. Thomas L. Dunbar, assignor to Chemipulp Process, Inc. U.S. pat 2,041,597 (May 19, 1936).—A circulating system is provided in which hot liquor is withdrawn from the top of the digester and reintroduced into the bottom through an eductor which serves at the same time to withdraw gas from the top of the digester and reintroduce it into the bottom. At the end of the cook the hot spent liquor is passed through a heat exchanger where it heats up fresh water that is introduced at the top of the digester. The invention also provides for the continuous circulation, before cooking, of hot acid through the digester and an acid accumulator, so that a considerable portion of the more easily soluble incrustants are removed and cooking proper starts with clean liquor.—A.P.-C.

System of Preparation of Pulp from Straw, Etc. Charles D. Altick. U. S. pat. 2,035,447 (March 31, 1936).—The invention provides a semi-continuous circulatory digester system for fiber liberation, more particularly from straw but also from wood, etc. The material is soaked with water or cooking liquor, and is repeatedly circulated during succeeding stages of disintegration, washing and bleaching, and a refiner is preferably included in the circulatory system.—A.P.-C.

Purification of Cellulosic Material. Francis H. Snyder assignor to Francis H. Snyder, Inc. Can. pat. 356,037 (Feb. 18, 1936).—Cellulosic material such as wood chips, waste paper, straw, cotton linters and bast fibers, is purified by cooking in an aqueous solution of alkali metal alkyl sulphates, alkyl sulphonic acids or their alkali salts, or alkyl-substituted aromatic sulphonic acids or their salts.—A.P.-C.

Production of Cellulose. British Celanese, Ltd. Brit. pat. 438,643 (Nov. 20, 1935).—Wood, straw, grass, cotton linters, etc., are freed from non-cellulosic impurities to produce a cellulose suitable for the preparation of cellulose acetate, viscose, etc., and for the manufacture of paper, by treatment with 0.5 to 10 per cent nitric acid at between 95°C. and the boiling point, *e.g.*, 100°C., and then with an alkali solution. An alkali hypochlorite solution, *e.g.*, a bleaching powder solution, may be used for the second stage. Silica may be removed by hydrofluoric acid before, during, or after the nitric acid treatment.—A.P.-C.

Digesting Fibrous Material. Thomas L. Dunbar. Can. pat. 355,540 (Jan. 21, 1936).—A digester is completely filled with fibrous material and hot acid liquor and sealed. Hot acid liquor is pumped into the digester until a predetermined superatmospheric pressure is obtained. The digester is then unsealed and hot acid liquor is circulated through it until the temperature of the fibrous material is substantially equalized and raised to a predetermined degree. The digester is again sealed and hot acid liquor pumped into it until a pressure of 90 lb. per sq. in. is created—A.P.-C.

Digester for Fibrous Material. Otto C. Schoenwerk assignor to Chemipulp Process Inc. Can. pat 356,143 (Feb. 25, 1936).—Acid liquor from a storage tank is forced through first and second eductors arranged in series into an accumulator. A stream of acid liquor is simultaneously circulated by pumping through the second eductor and accumulator. Relief fluid is withdrawn from a digester by the suction of the first eductor and the pump.—A.P.-C.

The Improved Murray-Waern System of Chemical and Waste Heat Recovery. F. H. Rosencranz. Paper Trade J. 102, No. 21:45-52 (May 21, 1936).—A description of the construction, operation and performance of the two units installed in the Hopewell, Va., plant of the Hummel-Ross Fibre Corp.—A.P.-C.

Beating

Production of Paper by Beating in Jordans. N. O. Zeiliger. Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialul 1935, no. 1:224-240; C. A. 30:3230.—Experiments in the production of paper by use of jordans exclusively show the following advantages as compared with the beating in hollander beaters. The beating is continuous, giving a more uniform product. The regulation is very simple and is independent of the skill of the operator. There is considerable economy in the electrical energy consumed, in the number of operators and factory space and a marked improvement in the mechanical properties of the resulting paper.—C.J.W.

Refining Action of Discs. D. Manson Sutherland Jr. PAPER TRADE J. 102, No. 19:42.44 (May 7, 1936).—The mechanics of beater and jordan tackle can be incorporated in discs. Centrifugal force can be more effectively used in discs and cells or grooves can be designed to do actual work on the fibers. Progress has been made during the past year in applying these mechanical factors to discs on a commercial scale for high yield sulphite—A.P.-C.

The Cowles System for Detrashing and Defibering Waste Paper Stock. Edwin Cowles. Paper Trade J. 102, No. 8:96-104 (Feb. 20, 1936); Paper Mill 59, No. 8, 94-104 (Feb. 22, 1936).—In the Cowles system the crude stock from the breaker beater is spun on a screen so as to give on the surface of the screen a linear velocity of 2000 to 5000 ft. per min.; at the same time the screens are forced by imposing a pressure on them which is supplied by the centrifugal action and positive means are provided for keeping the screens clean. The operation, performance and merits of the system are discussed. It is suggested that the "Classifiner" may be adaptable to the refining of paper stock and to the classification of fibers.—A.P.-C.

Apparatus for Refining Fiber. Daniel M. Sutherland, Jr. Can. pat. 354,206 (Nov. 19, 1935).—The working surfaces of the refining members are kept in such close clearance that the major part of the stock goes through the radially extending grooves of the surfaces.—A.P.-C.

Beating and Refining. Arthur B. Green. Paper Mill 58, No. 36:14-16 (Sept. 7, 1935).—An explanation and discussion of the use and advantages of the Green Automatic Slowness Tester and of the Green Beater Control.—A.P.-C.

Apparatus for Distintegrating Bales of Cellulose Pulp Sheets, Etc., for the Manufacture of Paper. E. & M. Lamort Fils. Brit. pat. 437,242 (Oct. 25, 1935).—The apparatus comprises rotating shafts having projecting arms and mounted side-by-side parallel with the working surface of the bale which is fed perpendicularly towards them.—A.P.-C.

Computation of Impact and Contact Inches in Beaters and Refiners. G. Lamont Bidwell, Jr., and D. Manson Sutherland, Jr. PAPER TRADE J. 102, No. 14:34-35 (April 2, 1936).—Terms and definition for impact and contact inches and formulae for the computation of these factors are suggested. Correlation of beater and refiner design with stuff properties are badly needed by equipment manufacturers and paper mill operators in order to improve upon present practice.—A.P.-C.

Preventing Foaming in Paper Making. F. Schacht. Fr. pat. 793,173.—In order to prevent foaming there is added to the stock in the beater a mixture of mineral, animal or vegetable oil, organic volatile oil or solvent, and sulphonated fatty acids.—A.P.-C.

Process of Making Paper. Dolald K. Pattilloch and Isabelle B. Pattilloch assignor to Pattilloch Processes, Inc. U. S. pat. 2,036,882 (April 7, 1936).—The mechanical hydration of cellulose fiber is augmented by a chemical hydrating effect consisting in building up the gelatinized portion of the mechanically hydrated fiber by means of gelatinized starch. The stock is beaten in presence of alum and gelatinized starch, and then about 1 per cent of sodium aluminate is added, the precipitated hydrated alumina serving as a bond to hold the starch on the fibers.—A.P.-C.

Dispersing Materials in Special Papers or the Like. William W. Carter assignor to Brayton Morton. U. S. pat. 2,027,090 (Jan. 7, 1936).—Separated particles of added material such as a gel containing abrasives, etc., are first attached to fibers so that the ends of fibers project from the particles, and the material thus prepared is then mixed with a liquid suspension of fibers such as a paper pulp and the mixture is formed into paper or the like.—A.P.-C.

Method and Apparatus for Refining Paper Stock. Edwin Cowles assignor to Cowles Engineering Corp. U. S. pat. 2,033,123 (March 10, 1936).—Stock is introduced centrally into a horizontal, flat circular chamber, in which a screen or perforated plate is interposed between the inlet and outlet. An impeller with radial vanes is rotated rapidly with very slight clearance from the screen, thus serving to simultaneously refine the stock and force the refined stock through the screen. Coarse material is ejected through one or more outlets at the periphery of the treating chamber.—A.P.-C.

Fiber Refining and Refiner. Daniel M. Sutherland, Jr. U. S. pat. 2,035,994 (March 31, 1936).—The stock is passed between relatively revolving refining members with parallel-moving "mated" or mutually corresponding main rubbing or abrasive surfaces, which may be flat, conical or radially curved in profile. The mating surfaces are provided with radially extending flow grooves, and are maintained at a close clearance (preferably about 0.001 to 0.002 in.).—A.P.-C.

Mechanical Paper Strength in Relation to the Furnish and Quality of the Pulp and the Beating in the Hollander. N. Soljus and N. Laudenback. Zellstoff u. Papier 16, No. 2:56-58 (Feb., 1936).—Facts concerning the hollander and its beater roll are given; the conditions of the test, and a discussion of the results. The energy consumption is 25 per cent lower; beating with a consistency of 5.9 instead of 4.6. The tearing length increases with the increase in heater consistency, but the double folds decrease. Beating at higher specific pressures is superior.—J.F.O.

Hollander. Ernst Schmidt, Unter Polaun, Bohemia. Aust. pat. 142,124 (Feb. 15, 1935).—The invention concerns the manner in which the knives are fixed on the beater roll and the bed plate.—J.F.O.

Hollander. Ernst Schmidt, Unter Polaun, Bohemia. Swed. pat. 83,168 (Feb. 9, 1934).—Means of passing the stock between beater roll and bed plate.—J.F.O.

American Refiner for Shives and Knots Resulting from Ground Wood and Pulp Manufacture. Wochbl. Papier fabr. 66, No. 49:923-24 (Dec. 7, 1935).—Description of the Haug refiner, with line drawings of certain hook-ups.—J.F.O.

Mixing Hollander for Paper Stock and Similar Materials. A/S/ Thunes Mekaniska Versted, Skoeyen. Nor. pat. 55,524 (April 17, 1934).—New material is added to the hollander while old material is let out.—J.F.O.

Sizing

Comparison Between Rosin and Montan Wax Sizing to Determine its Technological Adaptation. Influence of the Drying Process. W. Brecht and H. Hilz. Wochbl. Papierfabr. 67, No. 5:83-88; No. 6:103-07, (Feb. 1, 8, 1936).—From 60 to 80° C. rosin becomes a tough mass, while from 100 to 120° C. it melts; and montan wax becomes a liquid at 80° C. The method used in preparing the test sheets, adding the size, and testing the finished sheet for size are described in detail. The sheets are then dried by various means; in circulating air at a temperature of 40° C., dried in circulating air of 40° C. followed by a heating to 95° C., dried on a dryer cylinder, and dried on a dryer cylinder followed by a heating to 95° C. By means of numerous curves, the authors show the effects of the different types of drying and compares the results of the two kinds of sizing materials.—J.F.O.

Concerning Rosin Sizing. A. Kruse and W. Mudrik. Zellstoff u. Papier 15, No. 12: 518-19 (Dec., 1935).—Sizing in a hollander occurs under hydrolysis whereby the sodium resinic acid decomposes. The fibers taking up the caustic soda and the hydrolysis, depends on the pentosane content of the fiber. The amount of undecomposed sodium resinic acid is greater with the Delthirna process than with the white rosin milk containing free rosin.—J.F.O.

Rosin and Montan Wax Sizing for Fine Board. Influence on the Drying Process. E. Oswald Muller. Wochbl. Papierfabr. 67, No. 15: 275-77 (April 11, 1936).—In testing board for sizing efficiency, it is desired that the test shows the amount of moisture that would be taken up, that is the hygroscopicity. Rosin size will not size board sufficiently well, which is perhaps due to the fact that the board is heated too much before the hydraulic press. After 4 per cent of rosin size is added there is no increase in the sizing of the board and in this respect montan wax is superior and is not effected by the temperatures to which it is subjected.—J.F.O.

Notes on the Rosin Sizing of Kraft Paper. Harold Boedeker. Papier 39: 145-158 (Feb., 1936).—With uncolored kraft paper, complete sizing is reached at a pH of about 5.5. With kraft paper colored brown or with acid dyes, the pH should be 4.5. Beating kraft pulp in acid medium (pH 4.5) decreases the strength of the paper about 8 to 10 per cent as compared with that obtained by beating in alkaline medium (pH 8 to 9). Pulp containing black liquor gives a paper that is stronger but less well sized. A size containing about 35 per cent free rosin is preferable to a neutral size or to an all free rosin size when sizing is carried out in weakly acid medium.—A.P.-C.

Process for the Manufacture of a Paper Sizing Material Containing Pulp. Papeteries Navarre Soc. Anonyme, Lyons, France. Nor. pat. 55,129 (April 22, 1933).—A wax sizing material, such as paraffine, is incorporated into the pulp.—J.F.O.

Process for the Manufacture of a Pulp Containing Size, Which When Worked into Paper Gives a Sized Sheet without the Addition of Size and a Precipitation Medium. Papeteries Navarre Soc. An. Lyons, France. Finn. pat. 16,600 (April 19, 1933).—Immediately after the cooking, or latest at the washing apparatus, a waxy material, such as paraffin, insoluble in water, is added and absorbed by the fibers.—J.F.O.

Paper Sizing. Judson A. DeCew. U. S. pat. 2,041,285 (May 19, 1936).—The essential feature of the invention consists in a continuous mixing of the size with the pulp before coagulation thereof under conditions which do not allow time for the free alkali in the size to be absorbed by the pulp fibers, and the rapid coagulation of the size into the fibers by adding an alum solution mixed with fibers where the pH of the alum solution is controlled within certain limits.—A.P.-C.

Improvement in the Manufacture of Sized Paper Papeteries Navarre. Addn. 45,495 to Fr. pat. 750,032.—According to the main patent pulp is presized, *e.g.*, with paraffin, before beating. The present improvement provides a suitable apparatus for incorporating the paraffin to the pulp, preferably on the pulp-drying machine. The molten paraffin is delivered on to the surface of the last drying cylinder, and the pulp sheet is then heated, say for 30 mins. at 100 deg. C.—A.P.-C.

Sized Paper. Gerald Haywood assignor to Industrial Chemical Sales Co., Inc. Can. pat. 353,826 (Oct. 29, 1935).—A mixture of 50 per cent sulphite and 50 per cent soda pulp is beaten and formed into a sheet. Prior to complete formation a filler is added to the mixture and thoroughly distributed; it forms 10 to 40 per cent of the weight of the sheet. The filler is a mixture of not more than 50 per cent of clay, a compound of calcium sulphite and tricalcium phosphate, and rosin size. A sizing solution containing 0.3 lb. of starch per gal. and 1 part of glue for each 10 parts of starch is applied to at least one surface.—A.P.-C.

Emulsions of Materials Such As Montan Wax Suitable for Sizing Paper, Etc. George J. Manson assignor to Manson Chemical Co. U. S. pat. 2,030,385 (Feb. 11, 1936).—A wax such as montan wax is melted and added to a solution of a water-soluble salt such as magnesium sulphate and there is then added to the solution a second water-soluble salt such as sodium silicate adapted to form a gel with the first salt and produce an emulsion without substantial tendency to tackiness.—A.P.-C.

Bleaching

The Pros and Cons of Antichlors. Papyro. Papeterie 58: 157-158 (Feb. 25, 1936).—A brief discussion of the precautions required in the use of antichlors and of the importance of thorough washing completely to remove the reaction products.—A.P.-C.

Progress in the Methods for Bleaching of Pulp. A. Foulon. Wochbl. Papierfabr. 67, No. 3: 45-48 (Jan. 18, 1936).—A hollander type beater is invented which will make bleaching with chlorine gas possible, in that it prevents the escape of chlorine gas which occurs with the ordinary type hollander beater. A tower system for the bleaching of pulp is also described. Another patent describes the blowing of high density pulp into the bleaching medium, thus obtaining a more intimate mixing. Other recent patents are briefly described.—J.F.O.

The Bleaching of Pulp During the Year 1935. Ladislav Rys and A. Bonisch. Zellstoff u. Papier 16, No. 4: 1934-36 (April, 1936).—Despite the simplicity, the bleaching in beaters is uneconomical for, besides decreasing the strength properties of the pulp, the bleach consumption to produce a high white is not a linear function, but increases much faster due to reaction of the bleach liquor with the products of bleaching. Chlorine gas bleaching alone does not produce a good white and such pulp must be finished off with a hypochlorite bleach. 29 references to the literature and patents are briefly described.—J.F.O.

Bleaching Cellulosic Material. Maurice C. Taylor and James F. White assignors to Mathieson Alkali Works. Can. pat. 353,996 (Nov. 5, 1935).—The following is one

of several examples given: heat 2,500 parts of kraft pulp to 80 deg. C., add 152 parts of 50 per cent caustic soda solution, 570 parts of glacial acetic acid and 2,000 parts of water, again heat to 80 deg. C., add 231 parts of calcium hypochlorite and 4,500 parts of water, after 3 hours separate the bleach liquor, wash the pulp, add water to a consistency of 4 per cent and 50 parts of 50 per cent caustic soda solution agitate at 17 deg. to 20 C. for 10 min. and wash the pulp.—A.P.-C.

Process and Device for the Bleaching and Purification of Pulp, and Similar Materials. C. B. Thorne. Aust. pat. 142,240 (Feb. 15, 1935).—The invention concerns the mixing of the bleaching medium and the material to be bleached without any mechanical action, the motion taking place by gravity.—J.F.O.

Process and Device for the Continuous Bleaching of Pulp. J. Heiskanen, Helsingfors, Finland. Finn. pat. 16,379 (Sept. 20, 1932).—The material bleached is neutralized after bleaching in a special chest.—J.F.O.

Process for the Bleaching of Plant Fibers with a Medium Giving Active Chlorine and Active Oxygen. H. Th. Bohme, A. G. Chemnitz. Nor. pat. 55,023 (June 7, 1933).—The material drenched with alkaline chlorine bleach liquor and pressed, is treated without washing directly with an alkaline bleaching liquid containing active oxygen.—J.F.O.

Fillers and Coating Materials

Retention and Recovery; the Glue Method According to Sveen. F. Juell. Svensk Pappers-Tidn. 39, no. 8:147-148 (April 30, 1936).—Improved retention of fillers and a low fiber content in the white water can be effected by the addition of thin aqueous solutions of gelatin to the paper stock between the beater and the inlet of the paper machine. U. S. Patent 1,622,474 (March 28, 1927). Refernce is made to the combined Sveen-Pedersen flotation method for recovering fibers by aerating the solution and adding continuously small quantities of glue and gelatin. —C.J.W.

Concerning the Influence of Loading on the Fading of Colored Papers. S. Pestalozzi. Zellstoff u. Papier 15, No. 12: 496-98 (Dec., 1935).—It is well known that papers containing ground wood and unbleached sulphite fade considerably on exposure to light, but it is not so well known what influence fillers have. Paper samples were made of bleached sulphite and 20 per cent filler, sized with 2.5 per cent rosin size and 2 per cent alum and exposed to sunlight. Using brilliant yellow which is one of the best light proof colors; talc, kaolin, blanc fixe, and titanium were very little effected but chalk, zinc white and satin white were faded much more. Sulphate yellow extra showed no effect with talc and blanc fixe, slightly more with kaolin, chalk, satin white, and titanium and most with zinc white. Effects on some other dyes are also given. The pH of the paper decreased upon exposure to continued light.—J.F.O.

Chalk As a Filler. P. Sotoff. Zellstoff u. Papier 16, No. 3: 101-02 (March, 1936).—The percentage of particles up to 0.01 mm was 86, from 0.01 to 0.025 mm was 8, the remaining percentage was above 0.025, for the chalk used in the paper mill. For comparison, kaolin had 96.6 per cent of particles up to 0.01 mm, and 2.84 per cent from 0.01 to 0.025 mm. The paper made contained 40 per cent chemical wood pulp, 30 per cent ground wood and 30 per cent straw pulp. The sizing of the paper was satisfactory. The influence of the order of furnishing the beater, the influence of the thickness of the paper, beating and furnish, and the influence of the size and clay, were all briefly discussed. Chalk must be screened well before furnishing it to the beater.—J.F.O.

The Influence of Fillers on the Strength Properties of Paper. W. Brecht and H. Pfretzschner. Zellstoff u. Papier 16, No. 2: 51-56 (Feb., 1936).—The authors first briefly go over previous experiments on the subject, especially citing individual cases where increase in filler content resulted in increased strength. The following fillers were used: blanc fixe, annaline, lenzin, zinc sulphide, talc, chalk, asbestine, clay, and kaolin, and in all cases with increased filler content; the tensile strength, the bursting strength, the fold test, and the tearing length, all decreased. The details of the testing and a discussion of the results are given, including a series of curves.—J.F.O.

Paper Filler. Leon H. Larson assignor to R. T. Vanderbilt Co., Inc. U. S. pat. 2,034,519 (March 17, 1936).—The material consists of a dry mixture of clay, lime and alum, with or without addition of other ingredients.—A.P.-C.

Paper Manufacture. Harold R. Rafton, assignor to Raffold Process Corp. U. S. pat. 2,033,954 (March 17, 1936).—This patent is an improvement on U. S. pat. 1,595,416, of Aug. 10, 1926, and provides a paper containing a new type of calcium carbonate magnesium basic carbonate which consists substantially entirely of point-like shaped particles and practically no needle or feathery shaped crystals. The product may be produced as follows: dolomatic lime is slaked with agitation with sufficient boiling water to give a thick mud, diluted to a content of 1 to 2 lbs. solids per gallon, heated to near boiling, treated with CO_2 till no further absorption takes place (requiring from 8 to 24 hrs.), and the carbonation product is subjected to screening followed by ultra-screening to remove particles greater than 0.001 in. in diameter.—A.P.-C.

Manufacture of Paper Filled with an Alkaline Filler. Harold R. Rafton, assignor to Raffold Process Corp. U. S. pat. 2,040,878 (May 19, 1936).—Paper is made from a furnish containing an alkaline filler and an emulsion of a substantially water-insoluble sizing material substantially inert to alkaline filler (preferably paraffin), the emulsion being either substantially non-breakable or one made with a substantially water-insoluble type of emulsifying agent, but in the absence of a soluble agent precipitable by an acid-reacting material. There is then introduced an acid-reacting material (preferably alum) under conditions that minimize the time and (or) intimacy of contact of the constituents of the furnish.—A. P.-C.

Economics of Casein. Wochbl. Papierfabr. 66, Special Number: 63-64 (Dec., 1935).—The author first describes what casein is and how it is obtained. The production in the various producing countries is given and the amounts consumed, especially concerning Germany.—J.F.O.

New Applications and Developments in the Use of Starch in Paper. Jerome Strasser. Paper Trade J. 102, No. 17: 29-30 (April 23, 1936).—A brief discussion.—A.P.-C.

Titanium Pigments in Paper Making. William R. Willets. Paper Trade J. 102, No. 19: 33-35 (May 7, 1936.)—A brief review with bibliography of 25 references. —A.P.-C.

Using Pebble Mill in Coating Mill. Stephen J. Dickhaut. Paper Trade J. 102, No. 21: 52 (May 21, 1936).—A description of the Abbé pebble mill and of its advantages for the preparation of paper-coating mixes.—A.P.-C.

Paper Making Apparatus. James D'A. Clark and John Traquair, assignors to Mead Corp. Can. pat. 354,694 (Dec. 10, 1935).—A paper web is filled by impregnating a felt with filling material, applying the web thereon and passing through a press. This forces expelled filling material into surface contact with the web to incorporate it into

and upon the surface of the web as it passes between the rolls.

China Clay. R. J. Davies. World's Paper Trade Rev. 104: 1824, 1826, 1869,-1870, 1903-1906, 1984, 1986, 2064, 2066, 2104 (Dec. 6, 13, 20, 27, 1935); Paper Maker 91: TS27-32 (Feb., 1936).—The problems relating to the absolute determination of the particle size of china clays are indicated, and a simple means for determining the relative specific surface is suggested. For a mechanical analysis giving a complete particle size distribution, sieve, elutriation and sedimentation methods are all necessary. Provided steps are taken to ensure that the clays are completely flocculated, the suspension curve appears to bear some relationship to the mechanical analysis. The volume into which the suspension settles in 2 hrs. is called the "water absorption factor" and presents a useful means of indicating the relative particle fineness of various grades of china clay.—A. P.-C.

Coating Paper. John D. Murray assignor to Murray Liquafilm Corp. Can. pat. 355,929 (Feb. 11, 1936).—A transparent protective coating is bonded to paper without sinking into the paper structure; this prevents bleeding of the ink on printing. A representative formula is: 40 parts of nitrocellulose, 18 parts of diamyl phthalate, 5 parts of mineral oil, 20 parts of resin and 18 parts of tritolyl phosphate. Eight gal. of this mixture can be dissolved in each gal. of a solvent, such as 20 per cent butyl lactate, 20 per cent butyl alcohol and 60 per cent of high-flash naphtha. A very viscous and almost self-sustaining film is formed of the coating material and the film is forced against the paper by pressure.—A.P.-C.

Coating Webs. William Melville, Arthur M. Brown and Raymakers Syndicate, Ltd. Brit. pat. 438,373 (Nov. 15, 1935).—In coating paper and other webs by depositing the coating material as a liquid film on the surface of an immiscible flotation liquid and transferring the film as a coating on the web, the film-forming liquid is fed to the surface of the flotation liquid by a path which includes a wick or wicks through which the liquid soaks.—A.P.-C.

Reduction of Dusting in the Manufacture of Coated Paper. Louis C. Fleck assignor to Paper Patents Co. Can. pat. 356,294 (March 3, 1936).—The coating mixture containing an adhesive liquid fraction and an insoluble mineral fraction is kept at a substantially uniform viscosity sufficiently high to prevent rapid penetration of the web by the adhesive fraction, and the partial separation of the latter from the mineral fraction during the coating operation.—A.P.-C.

Drying

The Observance of the Drying Process. Friedrich Muller. Wochbl. Papierfabr. 67, Special Number: 42-46 (Dec., 1935).—Means for observing the drying process are described, such as; pyrometers, Pickles system, Stickles, Witham-Taylor, Tag, Dabeg, the Siccometer system of Siemens & Halske, and the Askania regulator. The principles of operation of each system are given, together with line diagrams.—J.F.O.

Suction or Press Roll, Especially for Use in the Manufacture of Paper. A/S/ Thunes Mekaniska Vaerksted, Skoeyen. Nor. pat. 55,525 (April 18, 1934).—J.F.O.

Device for Couch Rolls of Paper and Pulp Drying Machines. A/S/ Thunes Mekaniska Vaerksted, Skoeyen Nor. pat. 55,526 (April 21, 1934).—J.F.O.

Process and Device for the Forming and Drying of Objects Made from Fiberous Materials. S. Berendsen A/S Kopenhagen. Nor. pat. 55,039 (Nov. 12, 1931).—The forms have perforated walls and the fiberous material is subjected to gaseous pressure.—J.F.O.

Process for the De-Watering of Webs of Stock. Maschinenfabrik Imperial G.m.b.H. Meissen. Finn. pat. 16,366 (March 14, 1933).—The device consists of rolls acting together in pairs and a belt of rubber moving in between the rolls. The belt is corrugated in the machine direction.—J.F.O.

Device for the Drying of Pulp and Similar Materials in a Continuous Web. A. Bol. Svenska Flaktfabriken, Stockholm. Finn. pat. 16,368 (Sept. 13, 1933).—The web hangs in a special position in a drying chamber.—J.F.O.

The Control of Moisture Content in Paper Undergoing the Process of Progressive Drying. Joseph A. Sheehan. Paper Trade J. 102, No.. 13: 37-39 (March 26, 1936).—An explanation is given of a new method of determining and controlling the amount of moisture in paper as it leaves the drying process; it is based on the fact that, after a certain stage of drying has been reached, the increasing sheet temperature is a function of decreasing moisture content. The rate of evaporation during the various stages of drying is visualized by means of curves, and typical graphical records of moisture content as determined by the present method are presented.—A.P.-C.

The Heimbach Felt-Dryer. Otto Merckens. World's Paper Trade Rev. 105: 699-702, 740, 742, 779-782, 820-826, 864, 866, 906, 908 (Feb. 28, March 6, 13, 1936).—An explanation of the Heimbach felt-dryer (in which dryer felts are dried by blowing hot air through them), its performance and advantages.

Drying Rate for Tissue and Absorbent Paper. A. E. Montgomery. Paper Trade J. 102, No. 8: 116-20 (Feb. 20, 1936).—Drying rates for tissue and absorbent papers are lower than for kraft paper or newsprint. The drying rate on Yankee driers is about 4 or 5 times as high as for other driers. The weight of the sheet has a decided effect on the moisture content of the sheet entering the driers, most particularly on the lightest weights.—A.P.-C.

The Rate of Drying of Glassine and Greaseproof Paper. Vincent F. Waters. Paper Trade J. 102, No. 8: 120, 122 (Feb. 20, 1936).—The equations of Montgomery for the drying rates of kraft paper and used by Adams for drying rates of newsprint have been extended to apply to the rate of drying of glassine and greaseproof papers. These rates are lower and vary more widely than those for kraft and news.—A.P.-C.

Air Conditioning a Factor in Drier Control. R. Skagerberg. Paper Mill 58, No. 34: 24, 26, 28 (Aug. 24, 1935).—A discussion of the function and importance of air conditioning in controlling paper drying.—A.P.-C.

Paper Machine Driers. Ernst Schmidt. Fr. pat. 793,448 (July 22, 1935).—The drying cylinders are each surrounded by a wire screen or a perforated metal screen which is mounted so as to be only slightly spaced from the cylinder and to rotate therewith. Opposite the portion of the cylinder in contact with the paper web, hot, dry air is blown into the space between the cylinder and the surrounding screen. The use of felts can be dispensed with, even with lightweight papers.—A.P.-C.

Apparatus for Controlling Moisture Content of Paper. Frank E. P. Klages assignor to the Powers Regulator Co. U. S. pat. 2,038,431 (April 21, 1936).—A constant supply of heat is supplied to a drum or cylinder over which the material is directed; the moisture content of the material is tested continuously and the speed of rotation of the drum or cylinder is varied according to the indicated variations in the moisture content of the material.—A.P.-C.

Drying Cylinder. Curt Rosenblad. U. S. pat. 2,038,855 (April 28, 1936).—The invention provides a construction that combines a good axial and radial centering of the siphon tube (*i.e.*, an efficient draining action) with a minimum wear of the sealing surface. The sealing is effected by means of one single pair of plane sealing surfaces en-

gaging each other, and on these surfaces no external stresses from the piping can act.—A.P.-C.

Drier Roll Drive. Herman L. Kutter assignor to the Black-Clawson Co. U. S. pat. 2,037,242 (April 14, 1936).—The roll drive is arranged in units and each individual gear transmission of intermeshing gears is required to carry the load of only one roll, thus permitting of using relatively small gears.—A.P.-C.

Drying Apparatus for Paper Machines. Thomas G. Johnson. Can. pat. 354,609 (Dec. 10, 1935).—A paper machine has a pocket formed by the rolls and the sheet and an air-distributing conduit extending along the length of the machine through which warm air is forced. A steam line co-extensive with the conduit heats the air, and discharge lines are connected with the conduit for discharging the heated air into the pockets.—A.P.-C.

Wet Press. V. de Montgolfier. Belg. pat. 411,709 (Nov. 30, 1935).—The wet sheet is passed through a press in which the top roll is elastically supported on a felt-jacketed bottom roll, the jacket of which is washed continuously. The bottom roll in turn is supported by a draining roll which is mounted above a trough.—A.P.-C.

Paper Machine Drying Cylinder. Walmsleys (Bury) Ltd. Belg. pat. 410,684 (Nov. 30, 1935).—The condensate is collected in scoops that rotate with the cylinder and is delivered by gravity into stationary funnels mounted at a level higher than the axis of the cylinder, from which they are discharged outside the cylinder, also by gravity. —A.P.-C.

Dyes

The Coloring of Paper During the Year 1935. S. Pestalozzi. Zellstoff u. Papier 16, No. 3: 95-98 (March, 1936).—Description of experiments made on ultramarine; pigments, such as indanthren blue; new dyestuffs; resistance of dyestuffs to sun light; the fluroescence of colored paper, auramin and rhodamin become strongly illuminated under the Wood lamp while other colors appear dead, and new methods for dyeing.—J.F.O.

Printer and Paper

Paper Facts for Printers. "Diagnosing" paper. W. B. Wheelwright. Paper and Printing Digest (April, 1936: 7-14).—The article discusses the most important properties of paper from the printer's viewpoint and describes simple tests for evaluating finish, color and brightness, formation, and opacity. Reference is made to the many problems involved in paper making and the difficulties encountered in preparing a uniform web.—C.J.W.

Paper Facts for Printers. Diagnosing Paper. W. B. Wheelwright. Paper and Printing Digest (May, 1936: 3-10).—The author describes simple tests for the printer for evaluating the printability and functional ability of paper without the use of expensive laboratory instruments. The tests include grain direction, thickness, strength, picking, sizing, printing ink coverage and differentiation between pasted and solid bristol board.—C.J.W.

Vacuum Printing. P. Klemm. Wochbl. Papierfabr. 67, No. 9: 173-74 (Feb. 29, 1936).—A short description of a new invention in printing which offers many advantages over other methods and as regards the paper maker it makes it easier to carry out specifications, especially surface smoothness.—J.F.O.

Concerning the Mechanical Tension of Paper in the Printing Press. Julius Bekk, Ullstein Druckerei. Zellstoff u. Papier 15, No. 12: 493-94 (Dec., 1935).—Discussion of the various forms of tension in paper in the printing press.—J.F.O.

Surface Changes of Paper During Printing. S. Utschastkina and W. Matweeff, Zellstoff u. Papier 15, No. 12: 494-96 (Dec., 1935).—The more a sheet of paper is calendered, the less effect it has with relative humidity changes. With increasing stretch of soft papers there is a corresponding decrease in surface dimensions change. Various papers are subjected to changes in relative humidity, through moistening and through drying, and the percentage change in dimensions are given. The least change in dimensions occurs with rag paper; paper from purified pulp shows 17 per cent more change in dimensions than paper from bleached pulp. There is an optimum degree of beating, lower and higher than this gives greater dimensional changes. Increasing the pressing of the paper from 10 to 90 atmospheres showed only a small increase in dimensional changes. Increasing the size usage from 1.5 to 3 per cent showed the least change at 3 per cent. With increase of kaolin content the change in dimensions decreased. The increase in initial drying temperature showed an increase in dimensional change.—J.F.O.

Analysis and Testing

Fibrous Raw Materials Testing Developments. M. A. Youtz. Paper Trade J. 102, No. 14: 41 (April 2, 1936). —A very brief outline of developments during 1935, with bibliography of 12 references.—A.P.-C.

Progress in the Testing of Pulp and Paper During the Year 1935. Korn. Wachbl. Papierfabr. 67, No. 16: 296-98 (April 18, 1936).—Fiber analysis, bacteria permeability in paper, Bekk porosity and smoothness tester, a new smoothness tester for newsprint, ink penetration test for paper, Brecht method for determining the resistance of paper to tear, stiffness tester for paper and board, determining the degree of cooking by the use of diazo-paranitroaniline in alkaline solution, and new methods for the preparation and testing of hand sheets are the more important subjects mentioned. 42 references are used.—J.F.O.

Present State of the Determination of Oxycellulose. P. Heermann. Rayon and Melliand Textile Monthly 16: 525-526, 619-620 (1935); C. A. 30: 3633.—Most oxycellulose reactions are not entirely unequivocal and may be caused by concomitants, such as lignin and pectin compounds, starch decomposition products, silicic acid and mordants. These estraneous materials should be carefully removed prior to analysis. Oxycellulose and hydrocellulose cannot always be distinguished, whereas photocellulose is recognized by its occurrence on the side of the material that has been exposed to light. In general, the silver test with ammoniacal silver solution is considered the best test for oxycellulose and the Prussian blue test the next best. The methylene blue reaction used with proper precautions in judging is considered the best dye test. The use of both the silver and the methylene blue test is desirable, since they show two different types of oxycellulose, namely, a reducing type, and a type with a stronger affinity for basic dyestuffs. Other tests described for determining oxycellulose are tensile strength, luminescence, viscosity, boiling with soda, dyeing tests with Diamine Blue, Congo or Ruthenium Red, Fehling solution, Nessler's reagent, Haller's gold-purple reaction, vatting, phenylhydrazine, azo dyestuff formation and phloroglucinol. —C.J.W.

Determination of Cellulose in Fibrous Raw Materials. E. Debenedetti and F. Pancirolli. Ind. Carta 13: 289-296 (June, 1935); Chimie Et Industrie 35, 398 (Feb., 1936).—Boil 2 g. of sample (ground to pass through a screen of 0.6-mm. mesh and be held on a screen of 0.2-mm. mesh) for 30 min. with 200 cc. of 1 per cent caustic soda solution, keeping the volume constant by addition of water; filter on a Buchner funnel covered with a piece of white linen and wash with hot and then with cold water; transfer the residue to a dried and tared fritted glass crucible connected for vacuum filtration and also to a suitable source of chlorine gas; pass a current of chlorine at the rate of two

bubbles a second for 30 min. with straw, etc., and for 45 min. with wood; wash with water to eliminate hydrochloric acid and then repeatedly with a boiling mixture of 20 to 25 cc. of 2 per cent sodium sulphite and 5 cc. of 1 per cent caustic soda, till the filtrate is colorless or pale yellow; wash thoroughly with boiling water, treat with 0.1 per cent potassium permanganate solution, wash, treat with sodium bisulphite to complete decolorization, wash thoroughly, dry at 105 deg. C. and weigh. The determination requires at most 4 hours.—A.P.-C.

The Colorimeter as a Measuring Instrument in the Laboratory. Wochbl. Papierfabr. 67, No. 11: 206-08 (March 14, 1936).—The value of colorimeters in the sciences is first related and then those colorimeters used in the pulp and paper industry, such as, the pH tester, the Duboscq Colorimeter and the turbidity meter are illustrated and described.—J.F.O.

Practical Applications of the Photo-Electric Cell in the Pulp Mill. Harold A. Hauff. Pacific Pulp & Paper Ind. 10, No. 1: 10-11 (Jan., 1936).—A brief description of the photo-electric consistency meter and of the sulphite cooking liquor color comparator, as used at the pulp mill of Weyerhauser Timber Co., Longview, Wash.—A.P.-C.

Process and Device for the Preparation of Test Sheets for the Testing of Paper. Louis Schopper, Leipzig. Finn. pat. 16,489 (July 25, 1933).—J.F.O.

Process for the Determination of the Condition (moisture content, smoothness, feel) of a Web of Stock. R. Dirks, Chemnitz. Finn. pat. 16,355 (Feb. 2, 1933).—Electrostatic friction is used as the indicator.—J.F.O.

A Quick Method for the Determination of the Moisture Content of Wet Broke or Material from the Kollergang. Walter Diamant. Wochbl. Papierfabr. 67, No. 9: 172-73 (Feb. 29, 1936).—Water is squeezed from the wet stock by means of a specially designed apparatus and this water is measured. A table can be prepared giving the moisture content according to the amount of water removed from the wet stock.—J.F.O.

Testing of Wood Pulp for Moisture. F. W. Brainerd. Paper Trade J. 102, No. 10: 38-41 (March 5, 1936).—Several lots of baled dry sulphite pulp were sampled by both the disc (TAPPI, T210m) method and the modified wedge (British) method; the former showed from 0.31 to 0.53 percent (average 0.43 per cent) more air-dry pulp, and it is concluded that the difference arises from errors inherent in the disc method. A method combining the convenience of the disc method with the precision of the wedge method is proposed.—A.P.-C.

Instantaneous Determination of Moisture in Pulp by the Moisture Register. Robert L. Stevens. Pacific Pulp & Paper Ind. 9, No. 12: 17 (Dec., 1935).—The instrument is a self-contained electrical device employing modern circuits to utilize known electrical laws, so constructed that variations in the moisture content of pulp will be indicated on a meter in the instrument. Two instruments are available having bone-dry ranges of 81 to 89 per cent and 91 to 97 per cent respectively. Its merits are briefly discussed.—A.P.-C.

Further Notes on the Kollergang Beating Method for Pulp. Evaluation. James d'A. Clark and R. S. von Hazmburg. Paper Trade J.. 102, No. 14: 35-38 (April 2, 1936).—Further information and experiments are given regarding the Clark kollergang. The identity of action of eight different instruments is shown and also a very satisfactory agreement in results on a test pulp examined by six different laboratories. The effect of temperature on sheet-making appears to be more important than was first appreciated. Slight modifications to the method as originally proposed are suggested.—A.P.-C.

Freeness Detector. Harold D. Wells. U. S. pat. 2,027,660 (Jan. 14, 1936).—Stock is fed under a constant head into a charger within which is a container, the upper portion of the wall of which is perforated, and which is provided with an adjustable outlet. With a given setting of the outlet valve and a constant freeness of the stock, the level of liquid inside the container will remain constant; variation of the freeness produces a change in the level, and a float in the container is used to operate mechanism to restore the freeness to its original value.—A.P.-C.

A Study of the Relation Between the Chemical and Physical Characteristics of Representative Types of Pulp. Geo. H. McGregor. Pacific Pulp Paper Ind. 9, No. 10: 9-10; No. 11: 17-24; No. 12: 20-26 (Oct.-Dec., 1935); Paper Trade J. 102, No. 11: 27-39 (March 12, 1936).—A comprehensive study was made on the relationship between pertinent chemical constants and significant physical properties of three representative paper making pulps: blue denim rag, Alpha and Mitscherlich pulps, which were degraded by means of acid, bleach and heat, respectively, under definite time, temperature and concentration conditions, to cuprammonium viscosities representing, respectively, two-thirds, one-half and one-third of the original value.—A.P.-C.

New Method for the Microanalysis of Paper. Mario Turi. Indagine filatelica grafica 1, No. 2: 1-7 (1935); C. A. 30: 3640.—A weighed portion of paper 1-10 mm. square is disintegrated by boiling with 15 ml. of a 1 per cent potassium hydroxide solution. The insoluble material is washed by decantation with absolute alcohol and then with absolute alcohol containing glycerol and examined in water suspension microscopically.—C.J.W.

Quantitative Determination of Wool in Paper and Board. P. Goldsmid. Papier 39: 245-259 (March, 1936)—A description, discussion and comparison of four methods of determining wool in paper and board: (1) microscopic method (Vidal, *Mon. Papeterie Francaise* 71, 402-404 (1934); Vital and Goldsmid, *Mon. Papeterie Francaise 72*, 355-356 (1935); (2) alkali method (boil gently 2 g. of sample for 10 min. with 200 cc. of 5 per cent caustic soda solution in a 250-cc. pyrex erlenmeyer flask, and correct for the alkali-soluble of other pulps present—cotton 5 per cent, jute 24 per cent, hemp 20 per cent, chemical wood pulp 17 per cent, groundwood 10 per cent, chemical straw pulp 25 per cent); (3) acid method (shake 10 g. of sample for 3 hrs. with 300 cc. of 80 per cent sulphuric acid, and apply a correction for the solubility of groundwood (6 per cent), if present); (4) Kjeldahl method. *Conclusions:* Qualitative analysis is possible only by microscopical examination, which can give the wool content with an approximation of 5 per cent, which is quite satisfactory. The chemical methods are suitable especially for analysts lacking experience with the microscope. The alkali method is simple and rapid and gives results of sufficient accuracy for ordinary paper mill purposes; it should not be used where the wool content is less than 20 per cent. The acid method gives results accurate to ± 1.5 per cent; it is suitable for referee analyses, etc. The Kjeldahl method is the most accurate and gives results with an accuracy of ± 1 per cent; it is suitable for research investigations, and before using it, the paper should be tested for animal glue.—A.P.-C.

Factors Affecting the Determination of Water Vapor Permeability. Allen Abrams and George J. Brabender. Paper Trade J. 102, No. 15: 32-41 (April 9, 1936).—Report of an investigation undertaken with a view to obtaining data which could be used in simplifying the procedure to be followed in measuring the water vapor permeability of sheet materials.—A.P.-C.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 10, 1936

CIGARETTE PAPER

Champagne Paper Corp., *Ile de France,* Havre, 695 cs.; De Mauduit Paper Corp., *Ile de France,* Havre, 7 cs.

WALLPAPER

S. K. Lonegren, *Kungsholm,* Gothenburg, 7 bxs.; ———, *Bremen,* Bremen, 1 cs.

NEWSPRINT

N. Y. Times Co., *Markland,* Liverpool, N. S., 372 rolls; N. Y. Tribune, *Markland,* Liverpool, 1790 rolls; World Telegram, *Markland,* Liverpool, 770 rolls; Brooklyn Daily Eagle, *Markland,* Liverpool, 725 rolls; Clinton Paper Corp., *Markland, Liverpool,* 453 rolls; Jay Madden Corp., *Berlin,* Bremen, 267 rolls; News Syndicate Co., *International No. 1,* Gatineau, 313 rolls; Perkins Goodwin & Co., *New York,* Hamburg, 195 rolls; H. G. Craig Co., *Donpaco,* Donnacona, 337 rolls; ———, Bergensfjord, Skien, 355 rolls.

PRINTING PAPER

Ozalid Corp., *Volendam,* Rotterdam, 2 cs.; ———, *American Merchant,* London, 3 rolls; L. A. Consmiller, *Berlin,* Bremen, 26 cs.; Dingelstedt & Co., *Berlin,* Bremen, 142 crates; Steiner Paper Corp., *Berlin,* Bremen, 13 cs.; Dingelstedt & Co., *Bremen,* Bremen, 70 cs.

WRAPPING PAPER

Blauvelt Wiley Paper Manfg. Co., *Kungsholm,* Gothenburg, 20 bls.; ———, *Deutschland* Hamburg, 418 rolls; ———, *New York,* Hamburg, 9 cs.

FILTER COMPOUND

A. W. Fenton, Inc., *Deutschland,* Hamburg, 100 bls.

FILTER PAPER

A. Giese & Son, *Deutschland,* Hamburg, 1 cs.; H. Reeve Angel & Co. Inc., *American Merchant,* London, 6 cs.

DRAWING PAPER

H. Reeve Angel & Co. Inc., *American Merchant,* London, 8 cs.

BASIC PAPER

Globe Shipping Co., *Deutschland,* Hamburg, 50 crates; Dingelstedt & Co., *Bremen,* Bremen, 12 cs.

BARYTA COATED PAPER

Globe Shipping Co., *Deutschland,* Hamburg, 124 crates; L. A. Consmiller, *Berlin,* Bremen, 3 cs.

SURFACE COATED PAPER

Lunham & Reeve, Inc., *American Merchant,* London, 1 cs.; ———, *Berlin,* Bremen, 1 cs.

TISSUE PAPER

W. J. Byrnes, *American Merchant,* London, 4 cs.

COLORED PAPER

J. W. Hampton, Jr. & Co., *H. Jaspar,* Antwerp, 1 cs.; International F'd'g Co., *New York,* Hamburg, 17 cs.

TRANSFER PICTURES

Rohner Gehrig & Co., *Bremen,* Bremen, 14 cs.

DECALCOMANIAS

Sellers Transportation Co., *Bremen,* Bremen, 13 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *Scythia,* Liverpool, 80 cs. (duplex).

TRACING PAPER

Titan Shipping Co., *Bremen,* Bremen, 7 cs.

PAPER TUBES

———, *Deutschland,* Hamburg, 73 pkgs.; ———, *Bremen,* Bremen, 97 ctn.; 38 cs.

BOARDS

Miller Paper Co., *Kungsholm,* Gothenburg, 47 bls.

MISCELLANEOUS PAPER

Keller Dorian Paper Co., *Pr. Wilson,* Marseilles, 4 cs.; The Borregaard Co. Inc., *Kungsholm,* Gothenburg, 276 bls., 2,436 rolls; A. Johnson & Co., *Kungsholm,* Gothenburg, 13 bls., 80 rolls; ———, *Ile de France,* Havre, 8 cs.; Standard Products Corp., *Ile de France,* Havre, 4 cs.; Hudson F'd'g Co., *Ile de France,* Havre, 6 bls.; Jay Madden Corp., *New York,* Hamburg, 7 bbls.; Jay Madden Corp., *Bremen,* Bremen, 37 bbls.

RAGS, BAGGING, ETC.

E. J. Keller Co. Inc., *Pr. Wilson,* ———, 126 bls. rags; F. Stern, *Pr. Wilson,* Bombay, 25 bls. rags; O'Brien Padawer Co., *Pr. Wilson,* Bombay, 300 bls. Cotton waste; Darmstadt Scott & Courtney, *Tai Yin,* Kobe, 60 bls. rags, 8 lbs. cotton waste; ———, Silverelm, *Bombay,* 225 bls. cotton waste; Castle & Overton, Inc., *Silverelm,* Bombay, 140 bls. rags; E. J. Keller Co. Inc., *Volendam,* ———, 66 bls. rags; J. Eisenberg, *Volendam,* Rotterdam, 16 bls. rags; Manufacturer's Trust Co., *Berlin,* Bremen, 250 bls. rags; Banco Com'l Italiane Trust Co., *H. Jaspar,* Antwerp, 83 bls. linen waste; Chase National Bank, *H. Jaspar,* Antwerp, 33 bls. fustians; R. Blank, *Gitano,* Antwerp, 293 bls. rags; E. J. Keller Co. Inc., *Gitano,* ———, 374 bls. flax waste; Irving Trust Co., *Gitano,* Antwerp, 121 bls. bagging; G. A. Henshaw & Son, *Gitano,* Antwerp, 131 bls. flax waste; W. Steck & Co., *Gitano,* Antwerp, 71 bls. flax waste; Banco Com'l Italiane Trust Co., *New York,* Hamburg, 37 bls. rags; ———, *American Shipper,* Manchester, 36 bls. paper stock; M. Snedeker Corp., *American Shipper,* Belfast, 123 bls. paper stock; Loumar Textile By Products Co., *Hoegh Carrier,* Kobe, 200 bls. bagging.

GLUE STOCK, ETC.

———, *Exchange,* Genoa, 600 bags glue stock; ———, *Deutschland,* Hamburg, 225 bags bone glue; ———, *Berlin,* Bremen, 300 bags hide glue; ———, *H. Jaspar,* Antwerp, 115 bls. hide cuttings.

OLD ROPE

Van Oppen & Co., *American Merchant,* London, 29 bls.; ———, *Scythia,* Liverpool, 45 bls.

CHINA CLAY

J. Dixon Crucible Co., *Deutschland,* Hamburg, 1,000 bags, 50 tons; ———, *Scythia,* Liverpool, 25 casks.

CASEIN

———, *Deutschland,* Hamburg, 70 bags; ———, *New York,* Hamburg, 70 bags; ———, *Tacoma,* Buenos Ayres, 834 bags.

WOOD PULP

———, *Deutschland,* Hamburg, 816 bls., wood pulp 127 tons; Bank of N. Y. Trust Co., *Deutschland,* Hamburg, 195 bls. wood pulp, 39 tons;; Perkins Goodwin & Co., *Batory Gdynia,* ———, 1909 bls. wood pulp; ———, *Heddernheim,* Iggesund, 2,500 bls. sulphite, 500 tons; Central Hanover Bank Trust Co., *Heddernheim,* Hernosand, 600 bls. sulphite; ———, *Heddernheim,* Domsjo, 1,255 bls. chemical pulp 208 tons; D. M. Hicks, Inc., *Kungsholm,* Gothenburg, 300 bls. sulphite; J. Andersen & Co., *Kungsholm,* Gothenburg, 250 bls. sulphite; Bankers Trust Co., *Kungsholm,* Gothenburg, 254 bls. sulphate; Johaneson Wales & Sparre, Inc., *Kungsholm,* Gothenburg, 100 bls. sulphate; Pulp Specialties, Inc., *Kungsholm,* Gothenburg, 7 bls. sulphite; Bulkley Dunton & Co., *Kungsholm,* ———, 2,600 bls. wood pulp; Bulkley Dunton & Co., *Volendam,* ———, 820 bls. wood pulp; ———, *New York* Hamburg, 166 bls. wood pulp, 25 tons; Bank of N. Y. Trust Co., *New York,* Hamburg, 420 bls. wood pulp, 84 tons; Castle & Overton, Inc., *New York,* Hamburg, 1,000 bls. wood pulp, 200 tons; J. Andersen & Co., *Ivar,* Greaker, 1915 bls. sulphite, 388 tons; E. M. Sergeant Pulp & Chemical Co., *Bergensfjord,* Oslo, 300 bls. chemical pulp; The Borregaard Co., Inc., *Bergensfjord,* Sarpsborg, 504 bls. sulphate; Gottesman & Co. Inc., *Simon von Utrecht,* Sweden, 1,500 bls. wood pulp.

WOOD PULP RESIDUE

H. Firman, American Merchant, London, 10 drums.

WOOD PULP BOARDS

Fibre Case & Novelty Co. Inc., *Kungsholm,* Gothenburg, 23 bls.; H. Fuchs & Son, *Kungsholm,* Gothenburg, 8 crates; ———, *Volendam,* Rotterdam, 60 ctns.

NEWARK IMPORTS

WEEK ENDING OCTOBER 10, 1936

H. G. Craig Co., *Newscarrier Donnacona,* ———, 322 rolls newsprint.

ALBANY IMPORTS

WEEK ENDING OCTOBER 10, 1936

International Paper Co., *F. Seamans,* Newcastle, N. B., 2,800 cords pulp wood; Tradesman's National Bank Trust Co., *Heddernheim,* Norrsundet, 3,125 bls. sulphate; ———, *Heddernheim,* Ornskoldsvik, 1,653 bls. chemical pulp 270 tons; Pagel Horton & Co. Inc., *Heddernheim,* Ornskoldsvik, 3,080 bls. sulphate, 500 tons; ———, *Heddernheim,* Hernosand, 600 bls. sulphite; Bank of N. Y. Trust Co., *Heddernheim,* Hernosand, 3,000 bls. kraft pulp.

BOSTON IMPORTS

WEEK ENDING OCTOBER 10, 1936

American British Chemical Supplies, *Collingsworth,* Buenos Ayres, 417 bags casein; ———, *Collingsworth,* Buenos Ayres, 417 bags casein; ———, *American Shipper,* Manchester, 375 bls. cotton waste; ———, *American Shipper,* Manchester, 16 bls. paper stock; ———, *American Shipper,* Liverpool, 19 bls. rags, 103 bls. cotton waste.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 10, 1936

———, *Bayard,* Pernambuco, 40 bls. thread waste; Gottesman & Co. Inc., *Wanja,* Sweden, 1,500 bls. wood pulp; Price & Pierce, Ltd., *Wanja,* ———, 1,800 bls. unbleached sulphite.

WILMINGTON IMPORTS

WEEK ENDING OCTOBER 10, 1936

Pagel Horton & Co. Inc., *Bessa,* Sweden, 3,000 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 10, 1936

Washington Post, *Markland,* Liverpool, N. S., 1,508 rolls newsprint; Washington Daily News, *Markland,* Liverpool, 129 rolls newsprint; Gottesman & Co. Inc., *Wanja,* Sweden, 3,000 bls. wood pulp.

DETROIT IMPORTS

WEEK ENDING OCTOBER 10, 1936

Price & Pierce, Ltd., *Tindefjell,* ———, 1,500 bls. bleached sulphite.

SAN FRANCISCO IMPORTS

WEEK ENDING OCTOBER 10, 1936

Frazar & Co., *Tai Yin,* Manila, 100 bls. rags.

Government Paper Bids

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 14, 1936.—The Government Printing Office has received the following bids for 900,000 pounds of 50 per cent rag, 36½ x 48½ inches white ledger paper, grain short way; Whiting Paper Company, at 11.5 cents per pound; Aetna Paper Company, 11.72 cents; and 10.32 cents (grain long way); Reese & Reese, Inc., 10.48 cents; Dobler & Mudge, 12.36 cents; R. P. Andrews Paper Company, 11.33 cents; Barton, Duer & Koch Paper Company, 10.2 cents; and Mathers-Lamm Paper Company, 12.0375 cents.

For 36,000 pounds of supercalendered book paper; R. P. Andrews Paper Company, 4.75 cents per pound; Jessup & Moore Paper Company, 4.75 cents; and Paper Corporation of the United States, 4.75 cents.

For 8,400 pounds (30,000 sheets) 50 per cent rag white index paper; Walker-Goulard-Plehn Company, Inc., 13.28 cents per pound; Barton, Duer & Koch Paper Company, 12.6 cents; Mathers-Lamm Paper Company, 13.19 cents; R. P. Andrews Paper Company, 13.03 cents; W. D. Hess Paper Company, 12.75 cents; Reese & Reese, Inc., 14.4 cents; and J. R. Howarth Paper Company, 13.48 cents.

For 7,240 pounds (20,000 sheets) of 50 per cent white index paper; Walker-Goulard-Plehn Company, Inc., 13.78 cents per pound; Barton, Duer & Koch Paper Company, 13.58 cents; Mathers-Lamm Paper Company, 13.75 cents; R. P. Andrews Paper Company, 14.4 cents; Reese & Reese, Inc., 14.4 cents; and J. R. Howarth Paper Company, 13.98 cents.

Thomas L. Dunbar Renews Patent

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., October 13, 1936—An invention of Thomas L. Dunbar, of this city, which has marked a forward step in the manufacture of paper pulp, has been repatented. Announcement was made this week by the government that his application for renewal and, with the Chemipulp Process, Inc., as assignor, had been granted. The patent is designated as a process and apparatus for digesting fibrous materials. The original patent was granted in 1932 and application for renewal was filed in 1934. The process is described as introducing acid liquid into a digester while discharging air to the atmosphere from the digester. As soon as the acid gas commences to escape from the digester undergoing filling the air vent is immediately closed and the gas recovered.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 14, 1936.

Steadiness prevails in the local paper market. Demand for the various standard grades of paper is well sustained and supplies are moving into consumption freely. Sales forces of the leading paper houses express optimism regarding the future trend. Prices are holding to schedule, in most instances.

The newsprint paper market is exhibiting a stronger undertone. Manufacturing operations in the United States, Canada and Newfoundland are still running ahead of last year's record. Demand from the newspaper publishers is gradually expanding. The price situation is more encouraging.

Conditions in the fine paper market are favorable. Demand for book, cover, bond and ledger papers is persistent. Prices remain unchanged. Tissues are going forward in good volume. The coarse paper market continues to display strength. Increased activity is being experienced in the paper board market.

Mechanical Pulp

The ground wood pulp market is stronger than for some time past, due to the long drought last summer. While production in North America is being speeded up to take care of current requirements, offerings are limited and quotations higher. No. 1 imported moist and dry mechanical pulp is now selling at $25 to $26 per ton, on dock; while No. 1 domestic and Canadian ground wood pulp is offered at $28 to $29 per ton, delivered.

Chemical Pulp

The position of the chemical pulp market is practically unchanged. Paper mill demand for domestic and imported bleached sulphite and kraft pulps is still brisk. Prices are steady to firm. Bleachable grades of unbleached sulphite are in good request. Bleached soda pulp is also holding up well.

Old Rope and Bagging

Some improvement transpired in the old rope market. Demand for domestic and imported old manila rope is slightly better. Small mixed rope is fairly active. Old rope prices are firmer. The bagging market is little changed. Inquiries for scrap and gunny bagging are fairly numerous. Roofing bagging is attracting more interest.

Rags

The domestic rag market is fairly steady. New and old cotton rags are in satisfactory request. No. 1 white shirt cuttings, in particular, are attracting both home and foreign interest. Roofing grades are developing a stronger trend. No radical changes have been reported in the improved rag market.

Waste Paper

Business in the paper stock market is slowly reviving. Board mill demand for the lower grades is better and quotations on strictly folded news and No. 1 mixed papers are firmer. The higher grades of waste paper are sharing the general business improvement. Book stock is attracting greater interest than of late.

Twine

The local twine market is stronger than for some time past. Demand for the various varieties is fairly heavy and quotations on both hard and soft fiber twines are higher. The outlook for the twine industry is considered promising, with the busiest month of the year at hand.

Paper Demand Brisk In Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 12, 1936—A broad distribution of all kinds of papers, both fine and wrapping, prevailed in the Boston wholesale paper market last week. There was an improvement in the demand for paper for direct mail advertising for the fall business. Bonds, ledgers and book papers moved well. The call for diploma lines kept up in substantial quantities. Wrapping paper was in favorable demand. Movement in box boards was fairly good, although it was reported that the demand for box boards for shoe cartons was falling off a bit.

The paper stock market was strong, with a fairly good amount of business, although it was intimated in some quarters of the trade that it was difficult to get consumers to meet sellers' prices. Under old papers, there was a considerable advance in the price of old newspapers, which rose to .45 @ .50 f. o. b. Boston, from a former range of .40 @ .42½ f. o. b. Boston. Bagging, new domestic rags, old domestic rags and foreign rags remained unquotably unchanged in value.

Twine was in a very healthy condition, moving well. Profit margins, moreover, tended to widen. Indications are that some of the low-priced material has moved off the market. A twine man says that "we believe that the new policy of the mills in actually advancing prices before sending notification to jobbers is to be a very important factor in eliminating cut prices, and it is hoped that mills will stay that way. There has been a very radical advance, 20 to 25 per cent, in hard fibre twine in the last month and the trade appears to feel that prices are going higher. There is less hesitation on the part of the average consumer to place orders and he appears to feel that the upward trend in prices has definitely begun. In other words, he feels that an advance made today won't be a reduction tomorrow."

Lubrication Products Moves

The Lubrication Products Company has consolidated the manufacture and sales of its "Stapax" lubricating pad in Cleveland, moving its factory from Burgettstown, Pa., where it has been located in the past and taken over the entire building located at 5103 Detroit Avenue, Cleveland, Ohio. The move was made with the idea of improving the service the company can render its customers in improved manufacture and quicker shipments.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 14, 1936.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are generally holding to schedule. The pulp is quoted at $42.50 to $45 per ton, in bulk; while the powder is selling at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. The contract movement is well up to average for the time of year. Prices are well maintained. Bleaching Powder is quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly active. Domestic standard ground is quoted at 17 and finely ground at 17½ cents; while French and Argentine standard ground are selling at 17 and finely ground at 17½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—No radical changes transpired in the caustic soda market. The contract movement is normal for the season. Solid caustic soda is quoted at $2.55 to $2.60; while the flake and ground are selling at $2.95 to $3 per 100 pounds, in drums, at works.

CHINA CLAY.—The china clay market is exhibiting a fairly strong undertone. Prices are holding to schedule. Imported china clay is quoted at $12.50 to $21 per ton, ship side; while domestic paper making clay is selling at $ 6.50 to $12 per ton, at mine.

CHLORINE.—Paper mill demand for chlorine is persistent. Shipments against contract are moving in good volume. Prices are holding to formerly quoted levels without difficulty. Chlorine is selling at $2.15 to $2.25 per 100 pounds, in tank cars, at works.

ROSIN.—The rosin market is slightly firmer. Paper making gum rosin is quoted at $6.00 and wood rosin at $6.05 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $3.05 per 100 pounds, in tank cars, at works.

SALT CAKE.—Demand for salt cake from the paper mills is brisk. Prices are holding to schedule. Salt cake is quoted at $12 to $13; chrome salt cake at $11 to $12 per ton, at works; while imported salt cake is selling at $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is strong. Supplies are moving into consumption freely. Prices continue steady and unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH.—Conditions in the starch market are fairly satisfactory. The contract movement is seasonal. Prices remain steady and unchanged. Special paper making starch is quoted at $4 per 100 pounds, in bags; and at $4.27 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is holding up well. Demand from the mills is fairly heavy. Prices are firm. Commercial grades are quoted at $1.35 to $1.60; while iron free is selling at $2 to $2.25 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market continues steady. Yearly contracts are quoted at $18 per ton, in bulk, on orders of 1,000 tons, or over, and $20 on smaller quantities. On spot and nearby car loads the quotation is $21 per ton. All quotations are in car lots, at works.

TALC.—Most of the business transacted in the talc market during the past week was along routine lines. Prices remain unchanged. Domestic talc is quoted at $16 to $18 per ton, at eastern mines; while imported talc is selling at $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50 @	8.50
No. 2 Sulphite	6.50 @	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50
Book, B Grade, Cased		
S. & S. C.	5.85 @	6.60
S. & S. C. Litho	6.10 @	6.85
M. F.	5.60 @	6.35
No. 4 Grade		
Coated and Enamel	6.80 @	7.65
Coated Litho	6.80 @	7.65
Tissues—Per Ream—		
White No. 1	.82½ @	—
White No. 1 M. G.	.77½ @	—
White No. 1½	.62½ @	—
White No. 2	.60 @	—
Anti-Tarnish M. G.	.67½ @	—
Colored	.80 @	—
Kraft	.67½ @	—
Manila	.60 @	—
Unbleached Toilet	2.60 @	3.30
Bleached Toilet	3.94 @	5.26
Paper Towels—		
Unbleached	2.10 @	3.35
Bleached	3.30 @	3.70
Manila—		
No. 1 Jute	9.00 @	9.25
No. 2 Jute	7.75 @	8.50
No. 1 Wood	4.00 @	5.25
No. 2 Wood	3.50 @	4.00
Fibre Papers—		
No. 1 Fibre	4.25 @	5.50
No. 2 Fibre	4.00 @	4.75

(Delivered New York)

News, per ton—		
Roll, contract	41.00 @	—
Sheets	46.00 @	—
Kraft—		
No. 1 Northern	4.25 @	4.75
Standard	4.00 @	4.12½
Southern	3.87½ @	—
Glazed	4.37½ @	—
Striped	4.62½ @	—
Boards per ton—		
News	32.50	@35.00
Chip	32.50	@35.00
Sgl. Mla. Ll. Chip	47.50	@50.00
Jute Lined Chip	47.50	@50.00
Kraft Liners	62.50	@65.00
White Pat. Coated	57.50	@60.00
Binders Boards	67.00	@75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—		
Moist	25.00	@26.00
Dry	25.00	@26.00
(Delivered)		
No. 1 Domestic and Canadian	28.00	@29.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—		
Division 1	2.70 @	3.30
Division 2	2.65 @	2.75
Division 3	2.60 @	2.70
Prime Qualities—		
Class 1 All Prime Easy Bleaching	2.10 @	2.15
Other Than Easy Bleaching—		
Class 2 Higher than Standard	2.05 @	2.10
Class 3 Standard	2.00 @	2.05
Class 4 Lower than Standard	1.95 @	2.00

(On Dock, Atlantic Ports)

Kraft Bleached	3.00 @	3.25
Kraft Light & Strong	2.10 @	2.20
Kraft No. 1	1.85 @	2.10
Kraft No. 2	1.70 @	1.85

(F. o. b. Pulp Mill)

Kraft Domestic	1.80 @	2.00

(Delivered)

Soda Bleached	2.60 @	—

* Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	7.75 @	8.00
Silesias No. 1	5.50 @	5.75
New Unbleached	8.25 @	8.50
New Soft Blacks	3.75 @	4.00
Blue Overall	6.75 @	7.00
Fancy	3.00 @	3.25
Washables	2.25 @	2.50
Mixed Khaki Cuttings	3.50 @	3.75
O. D. Khaki Cuttings	4.25 @	4.50

Old Rags

White, No. 1—		
Repacked	3.25 @	3.50
Miscellaneous	2.75 @	3.00
White, No. 2—		
Repacked	2.25 @	2.50
Miscellaneous	1.75 @	2.00
Thirds and Blues—		
Repacked	2.00 @	2.25
Miscellaneous	1.90 @	2.00
Roofing Rags—		
No. 1	1.75 @	1.80
No. 2	1.45 @	1.50
No. 3 (bagging)	1.20 @	1.30
No. 4	1.10 @	1.15
No. 5A	1.00 @	1.05

Foreign Rags

New Rags

New Dark Cuttings	2.25 @	2.50
New Mixed Cuttings	2.00 @	2.25
New Light Silesias	5.50 @	5.75
Light Flannelettes	5.50 @	5.75
New White Cuttings	7.00 @	7.50
New Light Oxfords	4.00 @	4.50
New Light Prints	3.00 @	3.25

Old Rags

No. 1 White Linens	7.50 @	8.00
No. 2 White Linens	6.50 @	7.00
No. 3 White Linens	4.50 @	5.00
No. 4 White Linens	2.25 @	2.50
No. 1 White Cotton	4.25 @	4.75
No. 2 White Cotton	3.25 @	3.75
No. 3 White Cotton	2.50 @	2.75
No. 4 White Cotton	1.90 @	2.15
Extra Light Prints	2.00 @	2.25
Ord. Light Prints	1.75 @	1.85
Med. Light Prints	1.55 @	1.65
Dutch Blue Cottons	2.25 @	2.50
French Blue Linens	3.50 @	4.00
German Blue Linens	2.50 @	2.75
German Blue Cottons	2.00 @	2.25
Checks and Blues	2.00 @	2.25
Linsey Garments	2.15 @	2.25
Dark Cottons	1.90 @	2.10
Old Shopperies	1.75 @	2.00
New Shopperies	1.75 @	2.00
French Blues	2.25 @	2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	2.10 @	2.15
Domestic	1.75 @	1.85
Wool Tares, light	1.50 @	1.75
Wool Tares, heavy	1.85 @	2.05
Bright Bagging	1.70 @	1.75
Manila Rope—		
Foreign	2.50 @	2.95
Domestic	2.75 @	3.00
Jute Strings	2.00 @	2.25
Sisal Strings	2.00 @	2.10
Mixed Strings	.80 @	1.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	2.55 @	2.65
Ordinary Hard White No. 1	2.25 @	2.35
Hard White No. 2	2.10 @	2.20
Soft White No. 1	1.95 @	2.05
Flat Stock—		
Stitchless	.65 @	.75
Over issue Mag	.65 @	.75
Solid Flat Book	.55 @	.60
Crumpled No. 1	.35 @	.40
Ledger Stock	.85 @	.90
New B. B. Chips	.30 @	.35
Manilas—		
New Env. Cut	1.75 @	1.85
New Cuttings	1.35 @	1.45
Old Kraft Machine—		
Compressed bales	1.15 @	1.30
News—		
No. 1 White News	1.15 @	1.25
Strictly Overissue	.50 @	.60
Strictly Folded	.45 @	.50
No. 1 Mixed Paper	.40 @	.45

J. Andersen & Co.

Selling Agents

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New York

CHEMICAL & MECHANICAL PULP

Kraft Pulp

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Söderhamn, Sweden
KALIX TRÄINDUSTRI AKTIEBOLAG
Vanaftärden, Sweden
MUNKSUNDS AKTIEBOLAG
Munksund, Sweden
NENSJÖ CELLULOSA A.-B.
Sprängsvikén, Sweden

Bleached Sulphite

KELLNER-PARTINGTON PAPER PULP CO., LTD.
Sarpsborg, Norway
Edsvalla, Sweden
Hallein & Villach, Austria

Unbleached Sulphite

AKTIESELSKABET GREAKER CELLULOSEFABRIK
Greaker, Norway
BERGVIK OCH ALA NYA AKTIEBOLAG
Söderhamn, Sweden
CELLULOSEFABRIKS A.-G.
Bratislava, Czecho-Slovakei
SVANÖ AKTIEBOLAG
Svanö, Sweden

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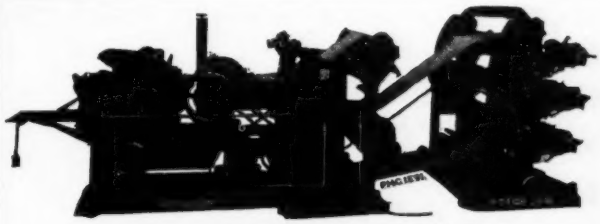

POTDEVIN
MODEL 102—HIGH SPEED
NOTION BAG MACHINE

Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—

India	.13¾	@	.16¼
Belg. White Hemp	.14¾	@	.18¼
India Compress	.14¼	@	.14¾

Fine Polished—

Fine India	.20	@	.22

Unpolished—

Box	.09¾	@	.10¼
Paper Makers	.09½	@	.11¾
Tube Rope	.10½	@	.13½
Wall Paper	.11½	@	.12¼
Wrapping	.15½	@	.21
Soft Fiber Rope	.12¾	@	.13¼

(Hard Fibre)

Bond	.12	@	.20½
Anchor	.11½	@	.13
Manila	.21	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¼
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04½	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—

No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.60	@	.70
Solid Books	.50	@	.60
Blanks	1.00	@	1.05
Kraffs	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45

Old Newspapers—

No. 1 Folded News	.42½	@	.45
No. 1 Mixed Paper	.25	@	.30

Roofing Stocks—

No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.25	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.08	@	.08½
New White, No. 2	.04½	@	.05
Light Silesias	.05½	@	—
Silesias, No. 1	.04½	@	.05
Black Silesias, soft	.03½	@	.04
New Unbleached	.06	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.07	@	.07½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.02	@	.02½
Fancy	.03	@	—
New Black Soft	.04	@	.04½
New Light Seconds	.03½	@	.04
New Dark Seconds	2.00	@	2.25
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	.03½	@	.04
Corduroy	.02	@	.02¼
New Canvas	.04	@	.04½
New Black Mixed	.02	@	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	4.00	@	4.50
Miscellaneous	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	2.00	@	2.25
Repacked	2.50	@	2.75
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	2.20	@	2.25
Domestic No. 1	1.50	@	1.60
Domestic No. 2	1.40	@	1.50
Roofing bagging	1.10	@	1.20

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	—
Domestic	2.25	@	—
Manila Rope	2.75	@	—
Sisal Rope	2.25	@	2.35
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.25	@	2.50
No. 2	1.00	@	1.10
Wool Tares, heavy	3.25	@	3.50
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.50	@	2.75

Old Papers

(F. o. b. Phila.)

Shavings—

No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	@	2.20
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.40	@	1.45
No. 1 Mixed	—	@	.85
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white	1.15	@	1.20
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.65	@	.70
Manila Cuttings	1.80	@	1.90
Print Manila	.55	@	.60
Container Manila	.55	@	.60
Kraft Paper	1.10	@	1.20
No. 1 Mixed Paper	.45	@	.50
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.60	@	.65
Overissue News	.60	@	—
Old Newspapers	.45	@	—

BOSTON

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¼	@	—
No. 2 Kraft	.04½	@	—

(Delivered New England points)

Southern Kraft	.04	@	—
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	@	35.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	57.50	@	67.50
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—

No. 1 Hard White	2.00	@	2.10
No. 1 Soft White	1.75	@	1.85
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.60	@	.65
White Blank News	1.10	@	1.15
No. 1 Kraft	1.15	@	—
Mixed Papers	.35	@	—
Print Manila	.55	@	.60
Container Manilas	.27½	@	—
Old Newspapers	.45	@	.50
Overissue News	.50	@	—
Box Board Chips	—	@	.25
Corrugated Boxes	.47½	@	.50
Kraft corrugated boxes	.95	@	1.00
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.50	@	2.80
Domestic	2.75	@	—
Transmission Rope	1.25	@	1.35
Jute Rope	2.12½	@	2.25
Jute Carpet Threads	1.00	@	1.10
Gunny No. 1—			
Foreign	1.90	@	2.00
Domestic	1.75	@	1.80
Bleachery Burlap	4.25	@	4.50
Scrap Burlap—			
Foreign	1.90	@	2.00
Domestic	1.60	@	1.75
Scrap Sisal	2.00	@	2.10
Scrap Sisal for Shredding	2.10	@	2.35
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	2.00	@	2.25
Australian Wool Pouches	2.35	@	2.50
Heavy Baling Bagging	1.85	@	2.20
Paper Mill Bagging	1.65	@	1.70
Bagging No. 2	1.10	@	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.03½	@	.03¾
New White No. 1	.07¼	@	.07¾
New White No. 2	.04	@	.04¼
Silesias No. 1	.06	@	.06¾
New Black Silesias	.03½	@	.04¼
Soft Unbleached	.07½	@	.08
Blue Cheviot	.06¼	@	.06¾
Fancy	.03	@	.03¼
Washable	.02	@	.0250
Cottons—According to grades—			
Blue Overalls	6.25	@	6.75
New Black, soft	.04	@	.04¼
Khaki Cuttings	.03¾	@	.04
O. D. Khaki	.03½	@	.04¼
Corduroy	.02¼	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.07½	@	—

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.45	@	1.50
No. 2	1.25	@	1.35
No. 3	1.15	@	1.25

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.70	@	2.00
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.75	@	1.90
Old Linsey Garments	2.12½	@	2.37½
New Silesias	5.00	@	5.75

TORONTO

Paper

Bond—Delivered—

No. 5 White	.10¾	@	—
No. 6 White	.10	@	—
No. 5 Tints	.11¾	@	—
No. 6 Tints	.10½	@	—
No. 5 Golden Rod	.12¾	@	—
No. 6 Golden Rod	.12	@	—

Ledgers—

Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½

Book—

No. 1 M. F.	6.50	@	6.75
No. 2 M. F.	6.25	@	6.50
No. 3 M. F.	5.00	@	5.35
No. 1 S. C.	7.00	@	7.50
No. 2 S. C.	6.50	@	7.00
No. 3 S. C.	5.50	@	6.00
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—

Wrapping—delivered—

Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	4.80	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	Nominal		
Sheets	Nominal		

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.80	@	.90
Light and Crumpled Book Stock	.70	@	.80
Ledgers and Writings	.90	@	1.00
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	—
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.07½	@	.07¾
Fancy Shirt Cuttings	.02½	@	.03

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